FEBRUARY, 1990
Vol. 35 — No. 10
$2.50

Precision SHOOTING

Dealing exclusively with the topic of extreme rifle accuracy

PRECISION SHOOTING

PUBLISHED MONTHLY BY PRECISION SHOOTING, INC.

Editorial Offices
37 Burnham Street East Hartford, Conn. 06108
Tel. 203-643-1157 (work)

Business Offices
5735 Sherwood Forest Drive Akron, Ohio 44319
Tel. 216-882-6877 (home)

Editor — David Brennan
Assistant Editor — John Gammuto
President — Myles Hollister
Vice-President — Dr. Richard Maretzo
Treasurer — Stella Buchtel
Corp. Clerk — Allie Euber

Precision Shooting (USPS 441840) is published monthly by Precision Shooting, Inc. Rates: U.S. $20.00 a year; Canada $22.00 a year. Two years: $36.00 U.S., $40.00 Canada. All other countries $26.00 Surface Mail, $44.00 Air Mail, each year.

POSTMASTER: Send all address changes to Precision Shooting, Inc., 5735 Sherwood Forest Drive, Akron, Ohio 44319.

Place of Publication — Elmira Quality Printers, Inc., Elmira, New York. Second-class postage paid at Elmira, New York.

NOTICE TO ADVERTISERS

PRECISION SHOOTING is printed by offset. Display copy is to be furnished by the advertiser. Advertising plates will be made from negatives, good black and white glossy prints or clear copy. Displays will be made to Advertiser's specifications. All normal composition will be set according to our own standards. Rate cards will be mailed to Advertisers on request. We reserve the right to reject advertising that we do not deem in the best interests of Precision Shooting, or which the Editor takes a dislike to.

LOADING NOTICE

The publisher, staff, and contributors to these pages respectfully advise readers that they make no representation of safety for the loads, procedures, or methods reported herein. We publish facts that were used on a given day, under a set of circumstances that are subject to dozens of variables, any one of which may cause an accident if changed or even duplicated. Please use caution at all times in the shooting sports.

BACK ISSUES

are available from: John Hollister, R.D. #2, Box 2395, Whitehall, New York 12887-9539. Inquiries by mail only, please. Make checks payable to Precision Shooting.

1-24 issues, $2.00 apiece
over 24 issues, $1.50 apiece

PS STAFF

YE OLDE EDITOR
David Brennan
37 Burnham Street
East Hartford, Conn. 06108
(work) 203-643-1157

COLUMNISTS:

Technical Editor:
M. H. Walker
404 Sycamore Square
Lady Lake, Florida 32659
904-753-4254

Benchrest - Feature
Lt. Col. Rick Hornbeck
R.D. 2, Box 220
Pine Bush, N.Y. 12566
914-744-3978

The Great Gunsmith
Seely Masker
54 Woodshire South
Getzville, N.Y. 14068
716-689-8894

Uncharted Waters
Merrill Martin
1250 67th Street
Emeryville, California 94608
(work) 415-652-2200

Rail Guns and Deringers
Jerry Masker
54 Woodshire South
Getzville, New York 14068

Big Bore Stuff
Buddy R. Salyer
151 East Main St.
Morehead, Kentucky 40351
606-784-8934

ASSISTANT EDITOR
John Gammuto
5685 Forest Hill Drive (#203)
Clarendon Hills, Ill. 60514
708-323-9029

Deputy Editor for Southwest
Robert Pease
P.O. Box 787
New Braunfels, Texas 78130
512-625-1342

Official Gunsmith on the San Andreas Fault
Geo. M. Fullmer
2499 Mavis Street
Oakland, California 94601
415-533-4193

Pomp and Circumstance
Peter (Rabbit) Callan
7813 River Road
Waggaman, Louisiana 70094

Official Gunsmith in Suspenders
Harold R. Broughton
Rt. 1, Box 447
Big Spring, Texas 79720
(915) 394-4430

High Velocity Stuff
Allie Euber
Church Street
Orwell, Vermont 05760
(802) 948-2621

The Bwana of Zortman
Boyd Mace
1300 New Hampshire (#46)
Rock Springs, Wy. 82901

SUBSCRIPTION MATTERS
Stella Buchtel
5735 Sherwood Forest Drive
Akron, Ohio 44319
216-882-6877

The Ballistics at the O.K. Corral
Geza Nagy
436 So. 5th Avenue
Highland Park, N.J. 08904
201-572-1255

.308 is a Beautiful Number
John Bunch
5303 Jefferson, Rt. #2
Garland, Texas 75040
214-530-7136

Hydraulics and Nuclear
Jim Schultz
P.O. Box 1998
Fairmont, W. Virginia 26554
(work) 304-363-4964

The Swamp Fox
Kenny Jarrett
383 Brown Road
Jackson, So. Carolina 29831
803-471-3616

The Desert Rat
Richard Cundiff
905 Saratoga Way
Carson City, Nevada 89701
(702) 882-9115

Single Shot Jedi Knight
Warren Greatbatch
10,000 Wehrle Drive
Clarence, New York 14031
716-759-6901 (work)

Advertisers Index

Accuracy Den 42
Armor Metal Products 26
ASSRA 25
Bald Eagle Precision Machine 60
Berger Bullets 40
Best of Precision Shooting 15
Broughton Rifle Barrels 23
Bruno Shooters Supply 7
B-Square Co. 9
Custom Products, Neil Jones 27, 60
Douglas Barrels 33
Forster Products 13
Fowlers 31
Gammuto, John 24
Giaimo, Vince 21
Greenawalt, Jim 23
Hammonds Gun Shop 28
Hanned Precision 26
Hart Rifle Barrels 60
Hart, Robert W. & Son 11
International Varmint Association 39
James Calhoon 43
Jarrett Rifles, Inc. 43
Jewell, Arnold 6
JGS Precision Tool Mfg. 27
Kelbly, Inc. 22
Krieger Barrels, Inc. 25
Lilja, Daniel 43
Marquart Precision Co. 26
Masker, Seely 5
McGee, Mike 4
MTM Molded Products 12
Newick, Glenn 22
Optical Services Co. 46
Pac-Nor 5
Pease, Bob 9, 10, 37
Pence Precision Barrels 22
Pend Orielle Sport Shop 33
Pro-Shot Products 35
Redding Reloading Equipment 31
Rochester Institute of Technology . . . 18
Rocky Mountain Rifle Works 34
Rorschach Precision Products 38
Rubright, Brian 35
Schneider Bullets 46
Schneider, Gary 42
Shaffer, Bob 33
Shilen Rifles, Inc. 8, 21
Shooters Choice 24
S.M.A.R.T. Guns 46
S&W Gunshop (Ron Ryder) 42
Tooley, David 60
Trading Post 48
Varner's 14
Vega Tool Company 35, 47
Welsh, Bud 40
Whitetail Design & Eng. Ltd. 18
Wichita Arms, Inc. 8

EDITORIAL

Many authorities think we will not see the likes again of this little man. Nuvolari was 29 years in putting together his fantastic record, and merely to survive 29 years of professional automobile road racing is miraculous. But no one who ever saw him can forget him, and there are many who close their eyes and remember him, remember the slight, short figure, the brown, hairy arms, the blue mechanic's trousers, the yellow turtle neck sweater with its flamboyant monogrammed "TN", the turtle brooch, a gift from D'Annunzio, the lean, tanned vulpine face with its great out-jutting jaw that was like no other jaw in the world save that over which Juan Belmonte, torero, matador, immortal, stared as he killed 3,000 bulls.

Kenneth W. Purdy,
Writing about the great
race car driver, Tazio Nuvolari

We were recently writing up a match report for the IBS section of these pages, relating the goings-on at Saalfelden, Austria (due East from the Council Cup range), when our attention was drawn to the listing of a specific award. Some fellow had carried off the honors for "Beste Gruppenergebnisse". We found ourselves wondering . . . now what the heck is that? After a bit of pondering (and keep in mind that the editor is universally regarded as brilliant-at-least) . . . it came to us . . . it's the "small group" award!

The more that we thought about it, the more we were impressed with the nomenclature. Your dictionary will advise you that "transliteration" is a foreign language word taken over into English "as is", without change of any sort. We feel that "Beste Gruppenergebnisse" should promptly be adopted, in transliteration form, by the benchrest world here in the U.S. If you go wandering around the office, showing your co-workers a "small group" plaque that you won on the past weekend, you will likely be met with yawns, and general lack of interest. But, hang up a few "Beste Gruppenergebnisse" plaques on the wall behind your office desk . . . and see if you don't find yourself sudeenly getting new respect, from both male and female. You will be asked questions, of course. Tell them nothing. Well, maybe a suggestive leer to some pretty young thing whose curiosity is just killing her, but no more than that. Soon you will have a new image at the office . . . the manager will ask your opinion on weighty matters . . . the guys will ask you to Monday Night Football parties . . . attrractive girls will ask if you could possibly come to their apartment tonight, to help them move a chair.

In the interests of total candor however, we are encountering two minor problems with this idea. First, a local match promoter tells us that he would have to double his match entry fees if he has to order four plaques with "Beste Gruppenergebnisse" engraved on each. And the local trophy store tells us that they would need to utilize a three foot plaque for that inscription (frankly, we don't think that much of their proposed plaque on this one . . . three inches high . . . three feet long). Unfortunately, many of the best ideas have had a few bugs to work out of them at the onset.

The Nosler Reloading Manual Number Three has just recently become available. It's 528 pages of cartridge reviews, written by most of the firearms industry's better known writers. If you know nothing but benchrest, you'll find Skip Gordon and the editor therein. If your horizons are a little broader, you'll find Layne Simpson, Col. Charles Askins, Bill Jordan, Dave Petzal, Bob Hagel, Finn Aagaard, and Ken Waters. It's likely to be in stock at your local gun shop, and it strikes us as a "must have" in any firearms library.

Skip Gordon, the father of the Super Shoot, and the firearms writer who covered the benchrest world for the national firearms publications (Guns, Handloader, etc.) tells us that after fifteen plus years of writing . . . he is "written out", and will no longer be authoring articles. We all reach the point where we notice, one day, that we are not getting any younger . . . and just maybe we should start accumulating funds for retirement. If Skip's decision stands, it will remove from the writer ranks one of the truly few writers who knows what is going on in the accuracy world. While we wish Skip well in his little semi-retirement . . . frankly we hope it's merely a thing of the moment, and hopefully he will return to his typewriter sometime soon, and take up where he left off.

A few nights ago a shooter called the assistant editor, and acidly inquired if there was any good reason that the NBRSA Nationals were left out of the final calculation for "Benchrest All Stars". The assistant editor said "huh?" . . . which was not a great answer, we must admit . . . but which pretty well reflected his puzzlement at this strange inquiry. The assistant editor then called the editor with the inquiry . . . and received an exactly similar response . . . "huh?". Not a great answer, we must admit . . . but which pretty well reflected his puzzlement at this strange inquiry. The assistant editor was appointed a committee of one to look into things, and report back to the editor (who had become a bit unglued at this point, and was talking morosely about changing the magazine over to archery, or philately, or sports cars, or mud-wrestling, or something.

As we go to press we still have not got all our answers in line, but we hope to have this singular occurrence straightened out by the next issue. It seems as if our computer operator was the victim of a computer glitch . . . in which a computer chose to reject the NBRSA Nationals results. Don't ask us why . . . the computer lives in Arizona, which is NBRSA territory. As all this was unfolding . . . we DID go to church and light a candle of Thanksgiving . . . that it was not an IBS computer that did the dirty deed.

In the meantime, our apologies to involved parties for the computer glitch. Let me tell you, we have called that little glitch into our office, and after giving it a heck of a raking over the coals . . . it left our office a littler glitch than when it came in here.

COVER PHOTO

The classic 1970 era varmint class rifle. A steel Shilen action, laminated stock with a Redfield scope on top.

Photo courtesy of Skip Gordon.

BOB BROYLES

Here are two photos of sunshade that I made up . . . to keep the morning sun out of your eyes while shooting. It also could help keep the rain off your scope, and is fully adjustable.

Anyone that wants to make one, they can order the parts they need from: MSC Industrial Supply Co., New York City, New York. Their toll-free number, nationwide, is 1 (800) 645-7270, and their Fax number is 1 (800) 255-5067.

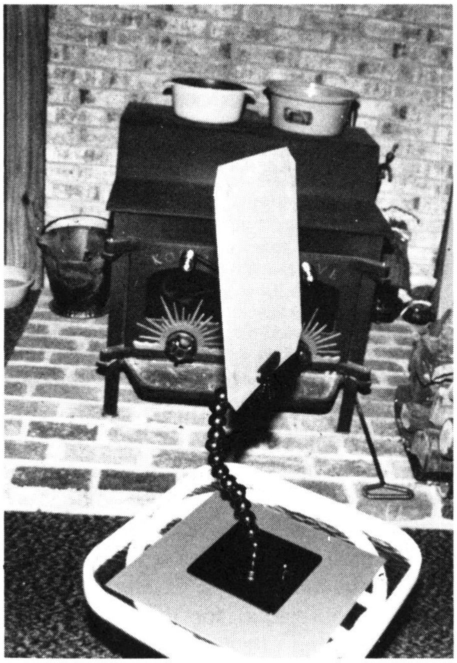
You will need a 1/2 Opti-Arm-Pac. The catalog number for the part is 09778820, and the price is $15.95. This is a snap-loc system. It has a 2½ magnet base, and a spring clip on the top. Now all you need is a 4″ x 4″, or 5″ x 5″ quarter inch steel base to set the magnet base on. Doing it this way gives you the advantage of being able to take the little rascal apart, for easy storage in your shooter's box.

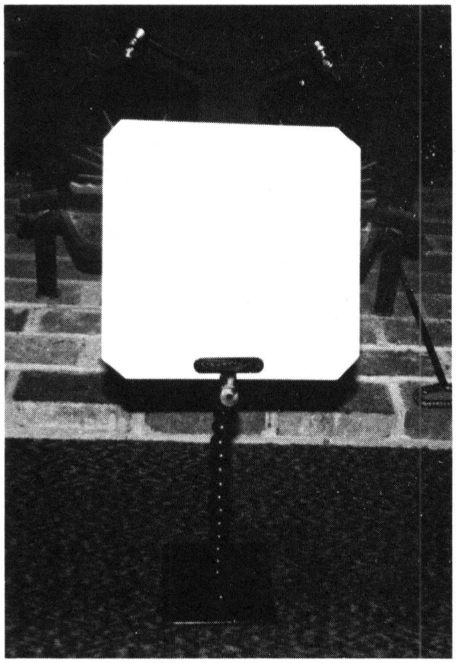
You can use cardboard, aluminum, or plastic for the shade part. Mine is aluminum, a rather thin .016″ thickness. The 12″ x 12″ size works well.

I feel that this may help a shooter. If he wishes to go ahead with the project, these advices will save him some money. If anyone has any questions they can feel free to call me at (304) 267-8323 after 4:30 PM. Or they can write to me, if they so choose.

Bob Broyles
905 Red Bud Drive
Forest Hills Estate
Martinsburg, W. Va. 25401

(Editor: Please note that the wood burning stove in the background of the photos is not part of Mr. Broyles' opinion that "this will help the shooter in matches". While neither the IBS or NBRSA has rules that SPECIFICALLY prohibit wood burning stoves in matches, most rangemasters frown on the practice. It certainly would be unwieldy in matches where you had to rotate benches).





Mike McGee

- **Custom Painting**
- **Candy Apple Colors**
- **Rainbow Colors**
- **Metal Flake**

Discounts to Gunsmiths

Mike McGee
Rt. 35 P.O. Box 342
Corriganville, Md. 21524
301-777-5193
Eve. 301-777-3758

BENCHREST SHOOTER OF THE YEAR
1990

The scoring is difficult, the method of selection is controversial, it's an expense with no offsetting income, and a thankless task in general. Only a complete, utter nincompoop would continue the contest yet again.

Fortunately (or unfortunately, depending on how you see things) the PS offices are filled to overflowing with "complete nincompoops". Once we got the staff away from the office TV set (Sesame Street was on at the time), and were able to take a vote (the staff and columnists are at their best when we keep things simple) . . . we had seven ayes, one nay, and five abstentions (do not be concerned with the abstentions . . . they had sneaked back to the employee lounge, and the TV set, to watch the ending of Sesame Street). The motion carried.

We will have things pretty much as they were previously. If it ain't broke, don't fix it.

Double point matches . . . three in number. The Super Shoot, the NBRSA Nationals, and the IBS Nationals.

Single point, designated matches. The NBRSA has two . . . the Cactus Classic, and the Crawfish Invitational. The IBS has one . . . the 200/300 yard Long Distance Championships. A total of six matches in all. (Someone check that pronouncement with an adding machine, please).

Scoring. 5-3-1 points for each yardage (first three places, obviously. There was some support, among the flakier elements of the PS staff to do things differently this year, and do a 5-3-1 from the bottom up . . . but cooler heads prevailed). 10-5-3 points for each grand aggregate . . . and for each multi-gun crown which the match sponsors make an appropriate award.

Official statistician: Walter Balch, 59 South Branch, Northfield, Illinois 60093.

Match sponsors are requested to send a copy of their match report to Mr. Balch. Failure to do so may result in your match not receiving match credits in the contest calculation. That in turn could get you lynched by an irate mob of crazed shooters. Get the message, Boopsie?

SHOOTER'S EYES

Dear Bud:

On page 20 of the November P/S, in the last paragraph of your article about mirage, you asked for help regarding your aging eyeballs. I can offer you a fairly complete explanation of your problem, but the solution is only partially satisfactory, and it will get even less satisfactory as you get older. From the tone of your question I presume you are in your late 40's or thereabouts — from my vantage point of pre-senility, age 61, I can assure you that it will only get worse, never better. It is necessary to understand a problem, however, before a solution can be devised, so let me first explain the problem.

Young people (people who are age 45 or less) have eyes with lenses which are soft and flexible, so that the contraction of the ciliary muscle of the eye can change the power of the lens nearly instantaneously. Young people can focus one instant on the target at 600 yards (which is effectively infinity, as far as optics are concerned) and the next instant they can be focused on the front sight at one yard, give or take a few inches. This focal point can be flicked back and forth rapidly to assure that both are properly aligned prior to firing the shot.

For purposes of this discussion, I will assume that all shooters have vision which either is or has been corrected to 20/20: i.e., both farsighted and nearsighted shooters are wearing corrective lenses which bring them to eutropia, which means they all have "normal" 20/20 eyes. Eutropic ("normal") eyes will start to show inability to focus, which is called presbyopia, at about age 44 or 45; farsighted eyes will get into trouble sooner, while nearsighted shooters may not have a problem until age 50 or so.

The basis of the problem is that along about the mid-40's, the lens of the eye, which until now has been supple and flexible, becomes stiff and noncompliant. So the ciliary muscle has to squeeze harder to get it to move the required amount. A bit later, the lens gets even stiffer, so that even when the ciliary muscle contracts to its utmost, it can only cause the lens to change a little bit. This means that the shooter is focused effectively at infinity all the time.

A normal (eutropic) eye is focused at infinity when it is at rest; contraction of the ciliary muscle and thickening of the lens is necessary to focus up to a shorter distance, such as the front sight at ± one yard. When the lens gets stiffer with age, it becomes increasingly difficult to focus at a shorter distance. The usual and customary solution is to go to bifocals, where the top half of the lens has the proper prescription to give good vision at a distance ("infinity"), and the lower half gives good vision at normal reading distance, which is about 16 inches for most people. Some people use trifocals, wherein there is a middle lens between the top and bottom lenses which is set for good vision at 3½ to 4 feet or thereabouts.

An analogy to this situation would be as follows: you have a Nikon 35mm camera, and one night you focus it carefully on the moon (infinity). Then you drop the camera and burr up the threads on the lens, and find that the focus cannot be changed. But your wife demands that you take pictures of your daughter's birthday party that afternoon, so what are you going to do? The only thing you can do is put extra lenses in front of the now-fixed Nikon lens. If you try to take pictures of the birthday cake at close range with the camera locked at infinity, the cake will be blurred. The solution is to place an auxiliary convex ("plus") lens in front of the regular lens assembly, to shorten the focal distance; the more powerful the lens, the closer the focal distance. The flip side of the coin is, the closer the focal point is, the more blurred infinity becomes.

Lenses for testing eyesight have their focal lengths measured in DIOPTERS. The focal length of a lens, expressed in diopters, is the RECIPROCAL of its focal length in meters. Examples: a lens with a focal length of one meter (39.37") is a one-diopter lens (it makes no difference whether this is a plus or a minus lens — the principle is the same). If the lens has a focal length of 40 centimeters, the diopters are 1 over 0.4, or 2½ diopters. A lens with a focal length of 2½ meters would be one over 2½ or 0.4 diopters, etc. The shorter the focal length of the lens ("the more powerful the lens"), the greater the diopters.

When a person gets bifocals, it is customary to put a distance correction in the top which gives clear vision at a distance (infinity), and then use a more powerful lens in the bottom to put the focal distance of the lower lens at about 16 inches. In most cases this lower lens is 1.75 diopters more powerful than the upper lens, give or take a quarter-diopter or so in either direction.

Unfortunately, neither the top nor the bottom correction of a bifocal is right for shooting — one is too weak, the other too powerful. I do not have trifocals, and don't know any shooter wwho has so I cannot state whether the middle lens would be right or not — but probably, even if it was right optically, it would put your head in an awkward position to look through this middle lens while aiming the rifle (or pistol, for that matter).

When using iron sights, it is necessary to look thru the center of the back sight while centering the target in or on the exact center of the front sight; this is easier said than

Continued on next page

MASKER-CULVER
TOOL GRINDING JIGS

(See Hornbeck review
in May PS)

$52.50 Postpaid

SEELY MASKER
*Rebarreling — Rechambering —
Restocking*
CUSTOM RIFLES

54 Woodshire South
Getzville, New York 14068
Phone (716) 689-8894
Send $1.00 for brochure.

PAC-NOR BARRELING
"Your Barreling People"

Pull buttoned, stress relieved and hand lapped chrome-moly and stainless rifle barrels

- Barrel Blanks
- Contoured Blanks
- Prefit Barrels

Most standard & hundreds of wildcat chamberings

For information write or call:
PAC-NOR BARRELING
99299 Overlook Rd. P.O. Box 6188
Brookings, Oregon 97415
Phone (503) 469-7330

SHOOTER'S EYES

Continued

done, particularly with presbyopic eyes. It is usually impossible for anyone, even with young eyes, to see the rear sight clearly, while the clarity of the front sight becomes a matter of speculation when one gets into the 40's. Since older shooters must of necessity have a fixed focus, this focal point must be that point which gives the greatest clarity to the front sight without making the target unacceptably blurred. If the proper focal distance was simply a matter of measuring the distance from your eye to the front sight and using a lens of that focal length, all would be simple. Unfortunately, such a lens would probably make the target appear unacceptably blurred, so other focal lengths must be tried. Altho there are various formulas for the proper focal length, in the end all such formulas are simply rough guesses, and it is necessary to try them out on the range to know if they are in fact correct FOR YOU. It is impossible, with "stiff" eyes and a fixed focal distance, to see the front sight and the target simultaneously with perfect clarity. But if you center a somewhat blurred target in the middle of (or exactly on top of) a clear and sharp front sight, the bullet ought to strike the middle of the blur (target). So while it is not necessary to see the target with crystal clarity, it **IS** necessary to see the front sight clearly. Thus the proper focal length of one's shooting glasses is that length at which the front sight is clear and sharp, but at which the target is only slightly blurred. If you are seeing the target with crystal clarity, your focal length is too long, and you are not seeing the front sight well enough. I repeat, it is more important to see the front sight clearly than to see the target clearly. If the front sight is clearly seen, it is likely that the bullet will hit near the center of the blur (target), but if you are trying to align a clear target with a blurred front sight, God help you — you may not even be on the target panel.

To condense all the foregoing into a couple of sentences, Your eyes have lost the ability to vary their focal length, therefore it is necessary for you to place a "plus" (convex) lens in front of your eye which is of just the right strength to put the focal point at the optimum distance for the gun you are using. Simple to say, not quite that simple to do. So let's next discuss how to go about it.

JEWELL TRIGGERS

LIGHT PULL TRIGGERS
1.6 to 5.0 ounces

HUNTING — VARMINT TRIGGERS
1.6 ounces to 5 pounds

Both with, or without, safeties

ARNOLD JEWELL

1922 Louann Drive
New Braunfels, Texas 78130
(512) 620-0971

Remember your daughter's birthday party, and the picture you wanted to take? If you take the picture of your daughter and her cake up close, the background will be out of focus, but if you back off a ways, your daughter and the cake will be clear and sharp while the background will still be acceptably clear. Photographers refer to this situation as "depth of field", and it applies exactly to shooting, also. You must have the front sight in sharp focus while the target can still be seen with acceptable clarity.

The critical distance here is the distance from your EYE to the front sight. So the first thing to do is to use a long-barreled rifle, and don't "crawl" the back sight. The sight radius (or sight axis), which is the distance between the front and rear sights, should be as long as possible, but also keep your head as far to the rear as comfortable — remember it is the distance from your eye to the front sight, not from the back sight to the front sight which counts, and you can lose three or four inches from this distance by snuggling your head up close behind the back sight. The best rifle for you to use would be a Kentucky long rifle with a 48″ barrel or so — the worst rifle is the service rifle, because no matter what you do, the front sight is of necessity fairly close to your eye.

I measured my eyeball-to-front-sight distance on several rifles ("E/S-D"), with the following results; this was done to show the variability which is possible, and will vary quite a bit between individual shooters:

Rem 40X w/ 27″ bbl:	E/S-D= 38″
Win M70 w/ 26″ bbl:	E/S-D= 36″
Rem 700 BDL w/30″ heavy bbl:	E/S-D= 40″
Anschutz 1411 .22 (old model):	E/S-D= 37″
Feinwerkbau 600 airgun:	E/S-D= 35″

But now note the following:

M-1 w/ NM sight: (28″ sight radius)	E/S-D= 32½″
M14 (M1A- 27″ sight radius)	E/S-D= 31½″

Because of these different E/S distances, I have three pairs of shooting glasses; one for the Service rifles, with their short barrels, a second pair which I use for the .22 and the airgun, and a third pair which I use with the high-power rifles. Actually, I could probably get along OK with one pair for the Service rifles and a different pair for all the rest. In fact, I have done so on two occasions when I brought the wrong pair of glasses to the range.

Now to the sticky part, which is determining the proper power lens to use to get the system into proper focus. This will require the cooperation of your ophthalmologist, oculist, or optician, because you will need to borrow some of his test lenses over a weekend. The proper lens will probably be 0.75, 0.87, or 1.00 diopters PLUS your regular distance lens. If you are only using a Service rifle, try 1.12 and 1.25 also, but you must be careful not to get the target too blurred. The first time out, you probably should also take 0.50 and 0.62 + lenses.

Take your regular glasses to the range (bifocals or distance glasses, NOT reading glasses or half-glasses), and use Scotch tape to hold the above-numbered test lenses in front of your regular glasses while you look through your rifle sights at the target at the LONGEST distance at which you expect to shoot (600 is plenty long enough — 1000 doesn't look any different). Try each of these lenses, and determine which is most satisfactory for you. This process is totally subjective, but I have found that if the target is clear, I need a bit stronger lens. I like the target to be just a bit blurred, while the front sight appears sharp and clear. A stronger lens would make the front sight even sharper and clearer, but would make the target unacceptably blurred. I like to see the target fairly clearly but with the edges a bit fuzzy — but as I said, this matter is entirely subjective, and whatever looks best to you is what you should use.

Those test lenses are expensive, so don't be surprised if your optician wants you to leave a rifle or binoculars as security for their return, particularly if he doesn't know you very well. If you have the time, shoot a group or two with the preferred lens taped in place, to make sure it will work to your satisfaction. If in doubt between two powers, I would choose the more powerful — even if it is not right, you will either accommodate to it or "grow into it" in a year or two. That's some more bad news — this whole situation is not static, and you will probably need to change your lenses every three years or so.

A few final observations and comments: Just as in the case of your daughter and her birthday cake, when both your daughter and the background become clearer when you take the picture from a greater distance, a longer barrel, which puts the front sight farther from your eye, gives a clearer view of the target when the front sight is clear. And if you keep your head comfortably to the rear, away from the rear sight, you have lengthened your E/S distance even more. The shorter the barrel of the rifle, the closer the front sight to your eye and the harder it will be to get an acceptable sight picture.

A quick-and-dirty method of solving this problem is to use a VARD or one of the

Gehmann variable-diopter rear sight attachments, which can have the diopter-power varied by rotating the collar of the device. Personally, I don't think these are sensitive enough, but they do work as advertised. If you wish to pursue this matter further, one source would be to call Homer or Chuck Pearson at Champion's Choice, Inc., 223 Space Park South, Nashville, TN. 37211, (615) 834-6668, or visit their showroom at Camp Perry during the Nationals.

This eyesight business is perhaps the most discouraging part of aging for a shooter, and I believe the NRA Rules Committee needs to recognize this problem more than they have done up to this time. They have a Senior category for shooters who are 60 or older, but this is too little and too late. What is needed is to allow "any" sights as one category of over-the-Course competition. Then the shooters in their late 40's with "stiff" eyeballs could continue to compete using glass or electronic (e.g. Aimpoint, etc.) sights, rather than getting discouraged and taking up golf. Or even worse, taking up shotgunning. Anyone who says that a scope cannot be mounted on a Match rifle because it would interfere with clip-loading is seriously underestimating the ingenuity of high-power shooters; it would take not over 90 days to have the first such system on the market, with numerous others to follow.

I think the NRA High-Power Rules Committee should dump the present "Senior" classification and substitute in its place an "any sight" category, and let the shooters themselves judge whether they wish to compete in the Open class (irons) or go to the any-sight division. Maybe us older shooters should start a letter-writing campaign to the Rules Committee to see if we could get this rule change adopted.

One final observation — I think hunters over age 50 should restrict themselves to scope sights. Shooting lenses work well on the range, which is a black-and-white situation, but when objects in the distance are slightly blurred and the "targets" are brown against a background of gray or green, etc., or else the front sight is blurred, it is time to admit defeat and go scope-only. I have a Winchester 94 with a long barrel which is perhaps the most "fun" gun in my collection, but I only use it on the range now, because of eyesight limitations.

I hope this discussion helps you solve your problem. In any event, you can always be philosophical about the matter and remember that, even though your eyeballs get stiff and other parts lose their stiffness, 'tis better to age gracefully than not to age at all.

Dr. John C. McAleavy, M.D.
P.O. Box 207
Hendersonville, Tenn. 37077
(615) 824-1212

BRUNO
SHOOTERS SUPPLY

NEW LEUPOLD 36X SCOPES
Available in Silver. See below.

BRUNO SHOOTERS NEW DISTRIBUTOR
FOR SWEETS 7.62 SOLV.

ADJ. SHOOT STOOL
Padded Seat Solid Oak $39.95

BAUSCH & LOMB - 36X SCOPES
Dot $339.95 — Xhair $334.95

"THE BEST OF
PRECISION SHOOTING" $8.50

H322 - 8 lbs. - $89.95

Federal 205m Primers per 1000, Sm. or Lg.	$ 18.95
Rem. 7½m Primers per 1000, Sm. or Lg.	16.95
Bonanza F.L. Size Dies 22 or 6PPC	16.95
Redding F.L. Size Dies 22 or 6PPC	24.75
Hart Rifle Rest (Varmint)	93.00
J-4 Jackets 22 cal.	38.95
J-4 Jackets 6mm	42.95
Lead Wire 3/16″ 25 lb. spool	25.00
Kleinendorst Bolt Disengagement Tool	21.95
Lee Auto Prime (2 trays)	13.95
Davidson Bullet Puller ...... 2 hole 12.95 3 hole	13.50
New Leupold (X-Hair) 36X	357.95
New Leupold (Dot) 36X	369.95
New Leupold (X-Hair) Silver 36X	369.95
New Leupold (Dot) Silver 36X	381.95
Canjar LP Rem. 2 oz. Trigger	99.95
Hart 2 oz. Trigger	98.00
Tuller Sand Bags Rear, Bunny, Rabbit	12.50
Tuller Sand Bags Front #1 Hunt. Rifle	8.95
Tuller Sand Bags #2 2½″ competition	8.95
Tuller Sand Bags #3 3″ wide	8.95
Tuller Heavy Duty Bolt Holster	7.95
Uncle Mike's Scope Caps	10.95
Bushnell Lt. Wt. Scope Rings	12.95
Bushnell 1″ (wide) Lt. Wt.	9.95
Comparitor Micrometer (carbide) reads in millionths	199.95
Dial Caliper 6″ Mitutoyo	74.95
Dial Caliper 6″Stainless Steel	47.95
Ball Micrometer	84.95
Standard 1″ Micrometer 1-10,000 carbide	28.95
Lyman Culver Powder Measure	171.95
PPC Cases Sako-USA	.81
Shooting Stools, solid oak w/vinyl padded seat	39.95
Never Dull - can	3.25
Whitetail Carbide Primer Pocket Uniformer	20.00
Bruno Aluminum Side Tension Rest Top	45.00
Bruno Loading Block (PPC), Lucite, Holds 20	11.95
Bruno 310 Tool Neck Size Die, Accepts Wilson Bushings (Less Bushing)	75.00
Bruno Custom Bolt Holster	12.00
Bruno Custom Scope Covers (Specify model)	
New 36X Leupold	12.00
Old 36X Leupold	12.00
Bausch & Lomb	12.00
Bruno Delrin Loading Block, White, holds twenty	11.95
Hart Rifle Barrels	206.00
Bald Eagle Front Rest	129.95
Jewell Trigger, standard 2 oz.	139.95
Jewell Trigger, adjustable, 2 oz. to 3 lbs.	159.95
Book, "The Ultimate in Rifle Accuracy," Newick	34.95

Cleaning Supplies

Bruno Custom Core Brush		
New 17 Cal Rifle Per Piece		$ 1.75
22, 6mm, 25, 6.5, 270, 7mm, 30, 303, 8mm, 338, 35, 375, 458	Per Dozen	9.25
Pistol - 22, 38, 9mm, 41, 44, 45	Per Dozen	9.25

Bore Guides with O Ring -

Rem, Hart, Stolle, Shilen, Winchester (State Caliber — be specific)	12.95
Hall, Wichita, other	14.95

Patches - Bruno Cotton Flannel

22 Cal 1⅜ Square Per M	6.45
6mm Cal. 1¾ Square Per 500	5.00
6mm or 30 Cal 2″ Rd. Per 500	5.75

Lube - Solvents - Solvent Bottles

Bruno - Bolt Lube Plastic Syringe	2.95
Gold Medallion - 4 oz.	4.95
Marksmans Choice - 16 oz. Bottle	15.70
Marksmans Choice - 4 oz. Bottle	4.95
Solvent Bottles Leak Proof 2 oz.	3.00
Solvent Bottles Leak Proof 4 oz.	3.25
Sweets 7.62 Solvent 8 oz.	5.45
Hoppes #9 (Old) w/Nitro - Gallon	45.00
Hoppes #9 (Old) w/Nitro - Qt.	13.95
Hoppes #9 (Old) w/Nitro - Pint	8.95
New Hoppies Bench Rest - 4 oz.	5.50
New Hoppies Bench Rest - 16 oz.	15.50

Sweets - Swabs

22 Sweets Swabs	1.00
6mm Sweets Swabs	1.00
7mm Sweets Swabs	1.00
30 & Up Sweets Swabs	1.00
Chamber Swab - PPC, .222, 7mm, .308	1.00

Bruno Bullets

22 Cal. 52 Grain FB	10.95
New 22 Cal. 57 Grain FB	10.95
New 22 Cal. 63 Grain FB	10.95
6mm 63, 65, 68, 70 FB	11.50
6mm 63, 65, 68, 70 BT	11.95
(Min. Order 500 per caliber and weight)	

Sinclair Products

Sinclair Arbor Press	63.00
Sinclair Neck Turner - Two Calibers Complete	53.00
Mandrel for Neck Turner	9.50
Sinclair Concentricity Fixture	48.00
Sinclair Rifle Caddy - Stand - 1 Caliber	30.00
Sinclair Rifle Caddy - Stand - 2 Caliber	51.00
Sinclair Side Tension Rest Top (New 1986)	41.00
Sinclair Adj. Seating Die - State Caliber	69.00
Sinclair Action Cleaning Kit	16.50
Sinclair Pill Bottle Adapt. Lyman, Reading	17.95
Sinclair Neck Expander 2 Calibers	20.25
Sinclair Case Length Trimmer Mini, 22, 6mm	15.00
Sinclair Primer Pocket Uniformer	18.95
Sinclair Carbide Primer Pocket Uniformer	33.95
Sinclair Bolt Disengagement Tool Remington	16.75
Sinclair Deluxe Deburing Tool with Shouldered Top Large Flash Hole	15.00
Sinclair Deburing Tool - Flash Hole PPC	13.50
Sinclair Powder Measure Bracket	12.00
Sinclair Seating Depth Comparitor 6 Calibers	10.95

Parker Hale Coated Rods

17 Cal. - 32″ Coated Rifle	16.50
17 Cal. - Jag	2.50
22, 6mm, 30 - 37″ Rifle Rod	16.50
22, 6mm, 30 - 44″ Rifle Rod	16.50
Jag or Adaptor Per Piece	2.50

Dewey Coated Rods

22, 6mm - 36″ Rod	15.00
22, 6mm - 44″ Rod	15.50
30 Cal. - 36″ Rod	16.00
30 Cal. - 44″ Rod	16.50
Jag - 22, 30	2.25
Adaptor 22, 30	2.25
Dewey 17 cal. Stainless Steel Rod 36″	18.00
Dewey 17 cal. Jag	2.25

Wilson

Case Trimmer	24.36
Case Holder	4.38
Neck Size Die, Less Bushing	28.80
Straight Line Bullet Seater	28.80
Bushing, Reversible	6.95
Full Length Resizing Die	13.65

Please include payment with order. Include ample shipping, overpayments will be refunded. ADD 2.90 for COD orders. All orders will be shipped UPS. PA residents add 6% sales tax. Dealer price sheets available with signed copy of FFL. Prices subject to change without notice. Other products available. Write for complete price sheet to:

VISA

BRUNO SHOOTERS SUPPLY
10 - 5th St. Kelayres, Pa. 18231
(717) 929-1791
(717) 929-3022

MasterCard

OFFICIAL SCREAMER NEWS

BOB WHITE, of Lake Hopatcong, New Jersey fired a group of .090 measurement at the October match at Weikert, PA., in the heavy varmint class. He shot a 6 PPC, CPS action, Schneider barrel, Leupold 36X scope, and 28.4 grains of H322 with Rubright 63 grain bullets. Mr. White smithed and stocked the rifle himself.

SMILEY HENSLEY, of Elkton, Virginia fired a Super Shoot record .080 group on May 24th, at 100 yards, in the sporter class. Smiley shot a 6 PPC, 40X action Shilen barrel, Leupold 36X scope, 27.5 grains of T322 with Euber 68 grain flatbase bullets. The gun was smithed by Clarence Hammonds, and stocked by Tony Boyer.

SMILEY HENSLEY then proceeded to shoot a nice .062 100 yard group at Fairchance on June 17th, in the heavy varmint class. This time Mr. Hensley was shooting a 6 PPC, CPS action, Shilen barrel, Leupold 36X scope, 27.5 grains of T32 with Euber bullets. Clarence Hammonds was the smith, and Bob Adamowicz the stocker.

BILL PONDER, of Hope, Indiana shot an .097 100 yard group at Fairfield, Ohio on October 28th, in the heavy varmint class. Mr. Ponder shot a 6 PPC, Stolle action, Schneider barrel, Premier 40X scope, 28.5 grains of H322 with Hasecuster 63 grain boat tail bullets, in a rifle smithed and stocked by Fred Hasecuster.

ROBERT WOLFE, of Mifflinburg, PA. fired a ten shot group at 1,000 yards at the Williamsport range on August 20th that measured 6.375 inches. Robert fired a 30-378, Wolfe action, Hart barrel and Sierra bullets. Howard Wolfe was the gunsmith, and Robert Wolfe the stocker.

JAMES BOETTCHER, of Enon, Ohio did it the hard way . . . via a ten shot, 200 yard unlimited class target . . . with a .356 group, fired at Fairfield, Ohio on October 29th. Mr. Boettcher shot a 6 PPC. Stolle Polar action, Hart barrel, Leupold 36X scope, 29.2 grains of GI322 and 67 grain Hottenstein flat base bullets. Fred Hasecuster was the gunsmith and the stocker.

H.J. FEDOROWICH, of London, Ontario sneaked under the line with an .098 heavy varmint class group, fired at Holton on October 1st. Jim fired a 6 PPC, Swindlehurst action, Hart barrel, Leupold-Siebert 45X scope, 27.5 grains of GI322 powder with 68 grain Hottenstien boat tail bullets. The stocker was Tom Meredith, and we are solemnly told that the gunsmith was "Twit Brothers".

DR. C.R. DAVIS, of Durham, North Carolina shot a 100 yard screamer at Roanoke, VA. on August 19th. An accomplishment that so rattled the doctor that he neglected to tell us the group size. Doctors tend to become completely unhinged after a good group; Dr. Maretzo is the same way. We do know that he was shooting a 6 PPC, Hall action, Schneider barrel, 27.5 grains of H322 with 66 grain Messer bullets. James Messer was also the gunsmith.

STAN GRUBE, of Lititz, PA. shot a ten shot, 1,000 yard group at Williamsport on October 8th that measured 6.843 inches. He was shooting a .308 Super, Remington 40X action, Hart barrel, an unspecified amount of experimental powder with Sierra bullets. Gene Graybill was the assembling gunsmith.

THOMAS PETRZALA, of Montrose, PA. shot another of those 1,000 yard groups. This one measured 7.375 inches, and was fired on July 16th ,at Williamsport. He shot a .308 Baer (.30-375 Mag), FN Mauser action (!), Hart barrel, Unertl 20X scope, 77.0 grains of H4831 with 200 grain Sierra bullets. Bruce Baer was the gunsmith as well as the stocker.

BILL HAGERMAN, of Wayside, New Jersey shot a nice, tidy 6.000 inch group at Williamsport on August 6th. He fired a 30-378, Poff action, Hart barrel, Leupold 24X scope, 96.5 grains of 5010 with Sierra 220 grain bullets. Gene Graybill was the gunsmith.

HARVEY METZ also got into the act at Williamsport; on October 8th he fired a 4.875 group, and that's fairly small, as 1,000 yard groups go. He was shooting a .308 Baer, Remington 40X action, Wiseman barrel, Unertl 20X scope, 82.0 grains of H1000 powder and Sierra 220 grain bullets. Bruce Baer was the gunsmith and stocker.

THE WICHITA WBR 1375
- Receiver 1.375" in dia. — 8" long
- Steel Extractor
- Opposite-side ports available in right hand or left hand model 1375's. Priced Extra.

$475.00 Plus Shipping

All actions finished in white. Bolts feature 3 locking lug-design. Suitable for Canjar or Remington triggers. Barrel thread size 1" 16 NF - 3 X 1" deep.

New Wichita's Fast Feed Cone Bolt
New Wichita's Easy to Remove Trigger Adaptor
New Wichita's Short Tang — Reduces Weight
New Wichita's Super Flute — Reduces Weight
New Steel Extractor
New Anschutz Trigger Hook-ups on special order (additional cost)

Wichita Precision Rifle Rest
Cast iron and steel 11 lbs. **$99.00**
Bag Set **$33.08**

F.O.B. Wichita
Send FFL with order or write for more information.

Wichita Arms, Inc.
444 Ellis, P.O. Box 11371, Wichita, KS 67211 • (316) 265-0661

NOW AVAILABLE DIRECT FROM SHILEN

Competition shooters can now obtain **6**-groove stainless steel SELECT MATCH GRADE BARRELS IN ALL SP/LV and HV contours. Be sure to specify 6-groove or 8-groove when inquiring or ordering.

Complete barrel specifications and prices - $1.00

SHILEN RIFLES, INC.
205 Metro Park Blvd.
Ennis, TX 75119
(214) 875 5318

E. GLENN SPENCER, of Huntington, West Virginia, at Fairchance, on September 3rd, fired an .082 100 yard group in the light varmint class. He shot a 6 PPC, Remington 40X action, Hart barrel, Leupold 36X scope, 27.5 grains of GI322 with 66 grain Fowler bullets. Fred Sinclair was the stocker and gunsmith.

ARLEEN ANDERSON, of Klemme, Iowa, on September 24th, at the Minnetonka range, shot a nice .067 group in the heavy varmint class. Arleen shot a .22 Waldog, CPS action, Hart barrel, Lyman-Siebert 30X scope, 24.2 grains of T32 with PCBC 51 grain bullets. The gun was built by Ed Cabor.

J.C. BRACONI, of Nice, France, in the process of winning the heavy varmint class at the IBS Nationals this year, helped his cause a great deal with a .192 200 yard group. J.C. shot a 6 PPC, Hall B action, McMillan barrel, Leupold 36 X scope, and shot 28.0 grains of Norma 201 with his own 68 grain flat base bullets. He was also the gunsmith and stocker.

BOB BIGGERSTAFF, of Winchester, Kentucky fired a .358 200 yard group in the unlimited class at the St. Louis range on September 16th. Bob shot a 6 PPC, Remington 700 action, Lilja barrel, Weaver 48X scope (!), 28.6 grains of GI322 with Morton 65 grain boat tail bullets. The gunsmith was Clarence Hammonds, and the gun was a Hasecuster rail gun.

FRED HASECUSTER, of Shelblyville, Ind., at that same St. Louis match mentioned immediately above, shot a tentative record (NBRSA), with a rather imposing .204 ten shot 200 yard group. Not bad, not bad at all. Fred was shooting one of his own rail guns, with a Universal action, Hart barrel, Premier 40X scope, 28.0 grains of T322 with his own 68 grain boat tail bullets. Needless to say, he smithed the gun himself.

Continued on next page

THE BOB PEASE COLLECTIONS,

are spiral bound booklets on accuracy rifle shooting. Written expressly to help guide you on bedding, accurizing, case preparation, neck turning, rifle preparation, scoping, loading and shooting techniques for rifle accuracy. All four volumes are fully indexed and provided with Tables of Content. Vol. I, Vol. II, Vol. III and the NEWEST ONE Volume IV are $6.00 each plus $1 first class postage per volume. ALL FOUR booklets are total $27 prepaid. Bob Pease Accuracy, POB 310787, New Braunfels, TX 78131-0787.

B-SQUARE TOOL SPECIALS

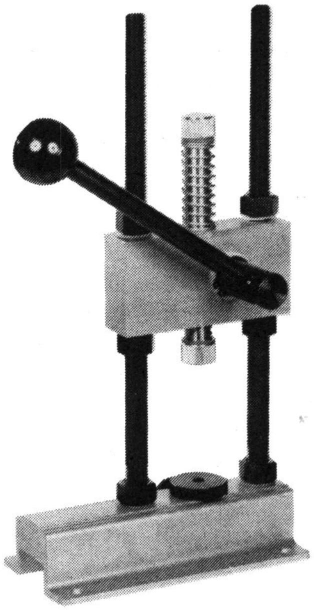
Super Mag Arbor Press

B-Square's super mag arbor press for precision reloading and industrial use has twin posts for "no-spring." All the load is between the posts. It easily resizes all caliber brass.

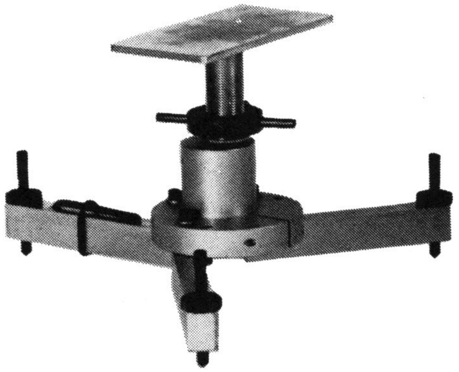
The press head is fully adjustable up and down on threaded posts for secure positioning. The ram, with replaceable brass caps and spring return, has over a 1-inch stroke. The handle is adjustable and the press can be used right- or left-handed.

Lightweight and portable for range use, this press will be a welcome bench rest loading tool. It's rated approximately 1 ton.

$79.95 + $3.50 for shipping.



Folding Rifle Rest



B-Square's rifle rest makes the perfect portable rest. It fits into a 4"x4"x10" box, and the legs unfold to a 13" diameter with 4-8" height adjustment.

The 8 pound professional fullsize rest features hardened leveling screws, a spoked height adjustment wheel and split clamp housings for rigidity.

$69.95 + $3.50 for shipping.

B-Square Precision Shooting Accessories
available from:

- **BOB PEASE ACCURACY**
  P.O. Box 310787, Zipp Rd.
  New Braunfels, TX 78131-0787
  (512) 625-1342
- **CUSTOM PRODUCTS**
  RD No. 1, Box 483, Saegertown,
  PA 16433. (814) 763-2769
- **SINCLAIR INTERNATIONAL**
  1200 Asbury Dr., New Haven,
  IN 46774. (219) 493-1858
- **HEINZ HENKE**
  Loenstrasse Postfach 1141,
  D-4476 Werlte, West Germany.
  5951/2729. FAX 5951/2727

B B-SQUARE CO. P.O. Box 11281, Fort Worth, TX 76110

OFFICIAL SCREAMER
Continued

JOHN GAMMUTO . . . (yes, yes, we know . . . it's hard to believe. I made him mail the actual target to us) . . . at St. Louis, on September 15th, shot a .360 200 yard, ten shot group . . . and didn't even get small group for the relay . . . since Mr. Biggerstaff (see above) beat him out. We have negative feelings about this, but we sent Mr. Gammuto an official screamer patch. . . as the only way to keep peace, as it were. We know, from past experience with this individual, that a denial of his application would merely give rise to weeks of protesting phone calls, letters, telegrams, and heaven only knows what else. We sent the patch; if you feel it to be undeserved, feel free to write to him directly with your views on the matter. Mr. Gammuto shot a 6 PPC, Schneider 1-13 twist barrel, Remington 700 action, in a Hasecuster rail gun, with a B&L 36X scope topside. The load was 27.5 grains of H322 with Estes 68 grain flat base bullets.

SARAH MORGAN, and TED MORGAN, each qualified for screamer patches at the Williamsport 1,000 yard range . . . the first husband-wife to qualify at this distance. Ted shot a 7.250 on June 25th, and Sarah shot a 7.437 on August 20th. The gun was a .308 Baer, with a Remington 700 action, Obermeyer barrel, Redfield 3200 16X scope, and the load was 78.0 grains of Reloader 22 with the Sierra 220 grain match bullet. Bruce Baer was the gunsmith, and Clay Weaver was the stocker. In her note accompanying the application, Sarah said many nice things about all the help her husband was in her shooting. This compares favorably to my wife's rotten attitude. When she (frequently) beats me, she merely says "good, that's what he deserves for not helping with the dishes on Thursday evening".

DONALD POWELL, of Wheelersburg, Ohio fired a .365 200 yard group in the unlimited class at Fairchance, on September 2nd. Donald fired a 6 PPC, Shilen action, Hart barrel, Leupold-Siebert 30X scope, and a load of 29.6 grains of N201 with Berger 68 grain bullets. Harold Broughton was the gunsmith.

BOB PEASE ACCURACY

P.O. Box 310787-S -oOo- (AC 512) 625-1342
NEW BRAUNFELS, TEXAS 78131-0787

BENCHREST EQUIPMENT & SUPPLIES

Adjustable Torque Wrench
Belding & Mull 42″SS rods
Benchrest Scopes and Mounts
B-Square rifle Rests & Arbors
Cauterucio GTB Benchrest Bullets
Corbin Cleaners, Laps and Lubes
Davidson Vise, Ramps & Shrouds
Devcon Bedding Kits & Hex Bolts
Federal Match Primers & Cases
Hart Rifle Rest & Cotton Patches
Jones PA Dies, Bushings & DeCap Tool
Kleinendorst Expandiron & Bolt Tools
Marquart Precision Neck Turning Tool
Redding Benchrest Micrometer Measure
Shilen 1-3 lb. & 2-6 ounce Triggers
Shooter's Choice Cleaner & Grease
Sinclair Rod Guides and Clean Kit
Tuller Glove Leather Smooth BR bags
Whitetail Pocket Reamer & Head Cutter
Wilson Seater, Sizer, Gages & Trimmer

NEW
BPA Volume IV
Data & trends
Add this one to
your set

NO
Overseas
Foreign Orders
Just U.S. 50
states & Canada

The Bob Pease Collections; spiral bound booklets on accuracy.
Vol. I $6.00 Vol. II $6.00 Vol. III $6.00 Vol. IV $6.00 + $1 ea. postg.
(all four for $27.00 prepaid FIRST CLASS MAIL)

Send $1.00 for 16 pages of brochure, prices, news & updates.

MON - TUE - FRI - SAT AFTERNOONS BEST TO PHONE

GIL HUDSON usually is good for at least one screamer a year, often more. Gil shot an .089 group at 100 yards in the heavy varmint class at Visalia, on September 2nd. He shot a 6 PPC, Hall B action, Hart barrel, Leupold 36X scope, 27.2 grains of T32 with Fowler 66 grain bullets. Fred Sinclair was the gunsmith, and Gil did his own stock work.

TONY BOYER and FAYE BOYER each picked up a screamer at the NBRSA Nationals this year. Tony got his in the unlimited class, with a .369 200 yard group. Done with a 6 PPC, some sort or other of an action, Shilen barrel, 28.5 grains of T322 and Euber 68 grain bullets. The gun was a Clarence Hammonds rail gun. Faye fired a .096 100 yard group in the heavy varmint class. She used a 6 PPC, Hart 2A action, Shilen barrel, Leupold 36X scope, 28.5 grains of T32 and Euber 68 grain bullets. Clarence Hammonds was the gunsmith, and Tony Boyer the stocker.

ED PENNEBAKER, of Greenville, So. Carolina was a busy little fellow in 1989 . . . as witness three screamer groups by the gentleman. At Salisbury, North Carolina on May 20th he shot a 100 yard group that measured .099 for the heavy varmint class. Then, on June 24th he shot a 100 yard sporter group that measured .083, at Knoxville, Tennessee. Finally, on August 19th he fired an .076 group at 100 yards while at the Roanoke, Virginia range. We gather that the same gun was used throughout . . . a 6 PPC, XP100 action, Pyro-Dux barrel, Lyman-Siebert 25X scope, and a full case of T322 with 68 grain Watson bullets. James Messer was the gunsmith and stocker.

WALT BERGER and EUNICE BERGER picked up two, and one screamers respectively in 1989. Walt shot a .137 group (ten shots) at 100 yards at Visalia, on September 4th. With a .22 PPC, yet! Then he remembered another . . . an .094 at 100 yards in the heavy varmint class at the Crawfish Invitational, this with a more conventional 6 PPC. Eunice Berger earned her patch in the light varmint class at Visalia, on June 24th, with an .095 100 yard group. She shot a 6 PPC, Stolle action, H-S barrel, Leupold 36X scope, 27.2 grains of T322 with Berger 68 grain bullets. H-S was the gunsmith and stocker.

BACK ISSUES

are available from: John Hollister, R.D. #2, Box 2395, Whitehall, New York 12887-9539. Inquiries by mail only, please. Make checks payable to Precision Shooting.
1-24 issues, $2.00 apiece
over 24 issues, $1.50 apiece

HUNTER CLASS WILDCATS

Dear Dave,

At the January 1989 IBS winter meeting I showed you a sample of the 30 SFG case. As I recall things, you refused to give the case back to me (Editor: You should be glad that you did not show me a new rifle, or a new girlfriend). Since then there has been created the 30 SFGX, the 30 SFGR, 30 SFGRX, and the 30 SFGM. As you already know, the SFG stands for Shinkle-Fritz-Gosciminski, the three originators of the wildcat (see page 4 of the March, 1989 issue for more on the background of the basic wildcat case). Each of the other letters stands for something (Editor: Have you noticed that our wildcatters are getting . . . well, more cerebral . . . these days?) The "X" stands for experimental, the "R" stands for revised, and the "M" stands for modified. (Editor: Tell the truth. You picked up these designations while reading the classes listing for a drag race championship. Right?).

I was experimenting with the smaller primer insert two months before you folks ran a good article on it in PS. I should say thanks, because the article helped me solve some of my problems.

I have shot the 30 SFG at the last two shoots. I shot a 249-14X at Factoryville, and a 247-10X at Mainville. I'm using a Hart barrel with 3500 rounds through it, and which has been rechambered five times (Editor: Should be about 12 inches long at the present time, we would guess).

As far as brass is concerned, I personally am finding more success with Federal cases than with the highly touted PMC cases. And the small Federal primer seems to work better that the Remington primer. A bit of a surprise, that; the Remington is the hotter primer, and one would theorize that it would do a better ignition job on the decent amount of powder that fills a hunter class case. I plan on using the 30 SFG in 1990.

I am enclosing three cartridge cases, which I'm not even going to ask to be returned. This should take away a lot of your fun in appropriating them. The 30 SFGX is longer that the 30 SFGR, and the 30 SFGRX has a small primer bushing. In candor, neither has seemed to work right.

I look forward to receiving PS each month. What have you been able to accomplish with your Wombat Wildcat? What is there about the .35 Remington basic case that you don't like?

Erwin Shinkle Sr.
615 Diehl Avenue
Bethlehem, PA. 18015

Editor: While we have our Wombat reamer, we were so busy in 1989 that certain things just had to be put aside prosaic matters, such as turning out this magazine, running an insurance agency, mowing the lawn at least once a year . . . stuff like that. The Wombat is of course pretty much a rimmed 30 SFG (you will find the details in the April, 1989 issue). We wanted to be able to use the 30-30 PMC case, which everyone and his brother had been praising to the skies, relative to the uniformity of its brass. We continue to follow, with interest, some of the goings-on of the Pennsylvania hunter class shooters, and their wildcats. The Fireplug, Randy Fritz's creation based on 45-70 brass has always interested us as a .30 caliber wildcat.

HART

OLD-FASHIONED QUALITY . . .
THE "HART" OF OUR BUSINESS

BENCHREST GUN WORK . . . OUR SPECIALTY

- Hart Products
- Actions - 4 styles
- Custom Made Benchrest Bullets
- Action Chamber Cleaning Tubes
- Arbor Press
- Primer Depth Reamer
- Reloading Dies
- Action Cleaning Tube
- Benchrest Pedestals - Comp. or Varmint
- Neck Turning Tool
- Flash Hole Deburring Tool
- Primer Pocket Tool
- Primer Seater
- Barrel Bench Vise
- Barrel Wrench
- Hart 2 oz. Trigger
- Cotton Flannel Cleaning Patches
- Brass Core Wire Brushes, Rifle & Pistol

HART VARMINT PEDESTAL MODEL H-10
WAS $99.28 **NOW $94.30**

REDDING RELOADING PRESS RED-72100
WAS $60.00 **NOW $57.00**

SIERRA #1100 22 Cal. 40 Gr. Hor
WAS $7.15 bx. **NOW $5.05 bx.**

REM. 40X TRIGGER ASSEMBLY
WAS $65.00 **NOW $61.70**

SPECIAL ENDS FEB. 28
OR WHEN SUPPLY IS
EXHAUSTED

WE HANDLE BENCHREST SUPPLIES AND EQUIPMENT OF PROVEN QUALITY.

- Shooters Choice Products
- McMillan "Drop In" Stocks
- Sierra Bullets
- Remington Match Primers
- Federal Match Primers
- Federal Match Cases - cal. 222 and 308
- J. Dewey Ramrods
- Forster Products
- MTM Products
- Lyman Products
- L.E. Wilson Products
- Redding
- Leupold Scopes
- Hornady Bullets
- B & L Target Scopes - 24X, 36X, 6X24

FREE CATALOG
Mailed catalog -
send $1.25 for postage

Dealer Inquiries Welcome —
Send certified copy of
Federal Firearms License for dealer prices.

ROBERT W. HART and SON, INC.
401 MONTGOMERY ST.
NESCOPECK, PENNSYLVANIA 18635

(717) 752-3655

RICK KAYSER

(Editor: Rick Kayser dropped a good-sized letter off to Buddy Salyer recently, on a virtual cornucopia of firearms subjects. Some of the input, that dealing with the 7mm, Buddy uses in his column in this month's issue. The overall letter however struck us as too good to waste. We think you'll agree).

Dear Buddy:

Here's a copy of a recent article by Layne Simpson on the 7mm-300, 7mm-8mm Mag, 7mm STW, 7mm Mashburn Magnum . . . they all seem pretty close. The late Warren Page was a 7mm fan, but I do not have any data on his case. (Editor: Mr. Page was quite enthusiastic about the 7mm Mashburn Magnum, short version, and hunted successfully with it on several continents).

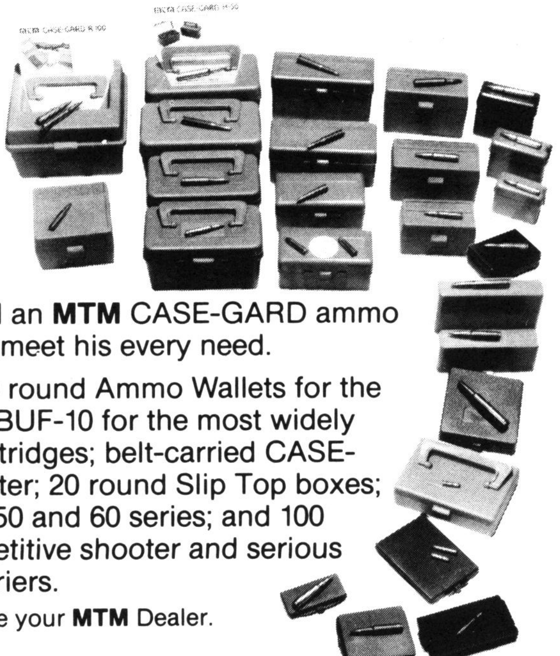
I went to one of the dynamite shoots this spring, and had a chance to shoot a 7mm on the 8 Mag case; very impressive! I've since misplaced the owner's name, but he claimed 3470 F.P.S. with IMR 7828 powder and the 168 grain Sierra out of a 30″ Lilja barreled 700 Remington. He was not happy with Weatherby brass; he felt it to be too soft, and also felt that the belt dimensions were not consistent from case to case. I rounded up Bob Hagel for a discussion on brass (found that he had just purchased one of the new Winchesters .300 Weatherby), and he suggested that I use 8mm brass if I wanted to "hot rod". I dug into my reference files of back issues of Handloader Magazine, and the articles of interest on this particular topic are: March-April '73, page 30 (sectioned Winchester-Western Cases, and Weatherby cases); Jan-Feb '77, page 20 (2nd paragraph, page 21, "Excessive head space" due to softer brass); Sept-Oct '88, page 18 (Article on 7mm-300 Weatherby), page 62, first paragraph "Weatherby case is not thick enough to support the front of the belt". All of these articles make note of the opinion that Weatherby-Norma brass is softer that Winchester or Remington brass.

You will note Layne Simpson's statement that the 8mm Mag has the most capacity (exceeding the .300 and .340 Weatherbys) of .375 H&H family brass.

Have you thought about using the .378 Weatherby/.416 Rigby case? Bob Bell had an article on a 60° shoulder, near-zero-taper .378 necked to .338, .300, 7mm, or 6.5mm; Ted Drummond Sr. did the design work. Bell got 3 chucks at 1125 yards with a 7mm (.300 Weatherby based), using a 162 grain Hornady with 87 grains of H570 powder. He had a muzzle velocity of 3460 F.P.S., and at 1000 yards still had a terminal velocity of 2,050 F.P.S. I had a bit of trouble accepting this story, so I called Bell, and later, Drummond. Drummond shot several sub-8 inch groups with the same rifle in matches in 1976 and 1977, so the gun WILL do it. I believe that the current record for ten shots at 1,000 yards is somewhere between four and five inches. If you choose to chase down the Bell article, you will find it in the 1977 Gun Digest. If you bought 100 .416 Rigby cases from Federal, you'd have a lifetime supply, and no belt to mess with. Another thing, since we're on the subject of belts. A local gun shop had nine boxes of new .300 Weatherby brass, so I miked it to get some "match" cases for my model 70. I found .015″ difference, in measuring from case head to the forward edge of the belt in the 180 cases . . . up to .008″ in one Box! I bought 100 Remington 8mm Mag cases, and found only .004″ extreme difference throughout. I still have 60 of the original 100 cases; 40 got traded with the rifle for a Remington .375 H&H. It's now a .450 Ackley. I take it along for a backup when I hunt chucks. Never can tell when you'll only wound one, and need a "stopper". Ever had a wounded bull chuck charge you? Pretty scary, let me tell you!

Chucks . . . my life's work . . . at least in the summertime. Talk about addictions . . . or substance abuse . . . rockchucks are the worst! I moved from Illinois to Idaho back in 1978, primarily so that I could hunt chucks every day of the summer. In "real life" I work for a company that closes down for the months of May through July, and I think that I've averaged 40 hours a week for the past five summers, in ambush for old Marmota Flaviventris. It may sound crazy, but I've shot over a thousand every summer since 1985. Counting nine this morning (I had a lunch date), I've shot 921 so far this year (letterdate is July 11th). I had a string of 34 "going" this past week, until I got uppity, and went for a 450 yard (guesstimated) shot on a chuck . . . that turned out to be a ground squirrel at a paced 521 steps. At 6′3″ I take a big step, and squirrels are half the size of a chuck.

My usual woodchuck rifle is a snug-necked .257 Roberts, in a Remington 700 long action, in a 40X stock, with a B&L 6X24 scope on top. It will only shoot a half inch at 100 yards, but it will also shoot 2¼″— 2½″ out at 400 yards (this out of a 26″ barrel). I'm hitting about 90% this year on chucks out to 500 yards, using mostly the Roberts. I have a Ruger 77V in .220 Swift, but the .257 is so nice, that it's usually the one that I take along. I push Sierra's 75 grain hollow points at about 3650 with H335, and have not wounded any yet. I dream dreams of an 83-85 grain boat tail hollow point bullet. I averaged four rifles a year, looking for a rifle that I was satisfied with, until the Roberts turned up in 1987. I've shot varmints with a .17 Bee, .22, .223 (my favorite up to 250 yards), .219 Zipper (A martini single shot with a one piece stock), .22-250 Ruger single shot), 220 swift (I'm on my third one at present), .243, 6mm Remington, .257 Roberts, .25-06, .270, .30-06, .45-70, .375



CASE-GARD®
PROTECTION
for
RIFLE AMMO

Whatever his interest, the rifle enthusiast will find an **MTM** CASE-GARD ammo box or carrier designed to meet his every need.

Products offered include 9 round Ammo Wallets for the hunter's pocket; 10 round BUF-10 for the most widely used African big game cartridges; belt-carried CASE-GARD 20 and Ammo Holster; 20 round Slip Top boxes; the original CASE-GARD 50 and 60 series; and 100 round boxes for the competitive shooter and serious plinker . . . plus rimfire carriers.

For more information see your **MTM** Dealer.

QUALITY in THERMOPLASTICS

MTM Molded Products Company
P.O. Box 14117 • Dayton, Ohio 45414 • (513) 890-7461

H&H,. 458 (two of them. One a Ruger single shot, the other a pre-'64 model 70), the present .450 Ackley, a Buhmiller version of the .450 Weatherby (that pre-dated Roy's version), and a .50-140-700 Sharps. (Editor: I'd be more impressed if you had done all this on the SAME DAY).

THe .45 Buhmiller was the ultimate ... we hollow pointed some speer 400 grain soft points, and got the 340 grain hollow point up to 3000 F.P.S. We found that we could get 300 grain hollow points to occasionally vaporize at 2900 F.P.S. That gun was a reliable one-shot stopper, but after 5 rounds off the bench . . . as the nearsighted cat said when he found out that he's been making love to a skunk, "this is about all the fun that I can handle in one day".

I confess that I would really like to have a minimum spec reamer made for a .257 with about a .280 diameter neck, but Boyd Mace's .240 Badger looks like a real go-get-em. One can never have too many accurate chuck rifles, you know, and I'll be darned, but I don't have a 6mm in the gun rack at present! (Editor: Stop feeling sorry for yourself. I don't have a .450 Ackley at present. Now ask me if I want one).

You want to see "one happy camper", get a look at me "headed out" for a 2 or 3 day rockchuck Shikari. Toyota pickup full of rifles, along with a 6 inch k-22, accoutremonts, and a cooler full of Dr. Pepper and Elk chili. (Editor: It is quickly obvious that perfect bliss in Idaho is a little different than the way that we perceive perfect bliss in Connecticut. I personally would not drive out of my driveway with such provisions; not even with Loni Anderson doing the driving). Man, that's living! I have a rack on the truck so I can haul my canoe around (Editor: I would think that with all the gas produced by a luncheon repast of "Dr. Pepper and Elk chili", you'd have no trouble floating ... without the canoe). The over-cab section has a 32″ x 48″ x ¾″ sheet of plywood bolted on to make a stand up benchrest. (Editor: This pick up, with all "accoutremonts" ... the benchrest, the canoe, and whatever else should scare the heck out of any Nazis running around in Tiger tanks out there. I'd back your .450 Ackley against any 88mm on their tanks).

I have a friend (Editor: Guys with .450 Ackleys have few enemies) who ranches a field 18 miles long and two miles wide (Editor: Around here a field that big is called Rhode Island). I have exclusive hunting rights on almost 200,000 acres of chuck heaven. I drive the 18 mile loop, stopping every ¼ mile or so to shoot. From the ditch road it runs 300-400 yards to the rockface, far enough so the chucks don't seem to connect the truck and noise to Uncle Pervis' sudden urge to try break dancing. (Editor: It's probably the upside down canoe on top that lulls them into a false sense of security. They just presume that you've drowned.) I shoot a couple, move down ¼-⅜ mile, then glass some more. There are several small ponds/ reservoirs around my shooting area; so I set up camp about 6:00 pm, and heat up some Elk chili. Add a chunk of homemade bread, and a cold Dr. Pepper . . . just about sinful. (Editor: One gathers that there is no history of ulcers in your family? In that case . . . you'll be the first).

I haul a 50 round MTM box of loaded .257 Roberts shell, and a box of whatever else I've brought on this particular trip, and call off the carnage cannonading when I run out of ammo, or the heat causes the chucks to den up.

I checked my log books for chuck kills so far in 1989 . . .

.257 Roberts	738
.30-06 Ruger SS (cast bullets)	21
.30-06 Grand M1	6
.220 Swift	96
6″ K-22 (.22 rim fire pistol)	14
.35 Remington (Marlin Lever gun)	19
.32-40 SS (cast bullets)	9
.221 Fireball (XP100)	4
.45-70 (rolling block)	14

The 14 kills with the rolling block were all carried off with 500 grain cast bullets, and were instant kills. But that gun was a real stinker for recoil. After a dozen shots I felt as if it was me that was losing the shoot-out.

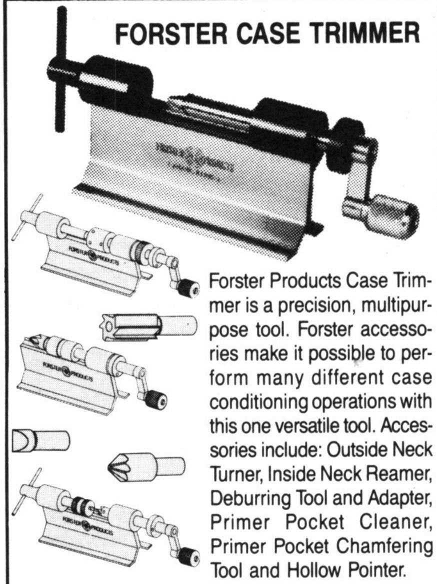
I was out in the field for 36 days in May and June, and harvested 879 chucks, a couple hundred ground squirrels, and one coyote. My best day was a total of 46 chucks, and my worst was 9. My best percentage has been 34 out of 36 shots (all with the .257 Roberts), and so far I've not missed more that two shots in a row.

I do my chronograph work only after I've reached as warm a load as I can keep in a half inch at 100 yards. I've got five shot groups out of my Roberts at 3650 F.P.S., that were grouping from .380 to .480″. Then I shoot 5 shot groups at 50 yard intervals out to 600 yards, and plot the resulting numbers in M.O.A., and scope clicks. I zero at 300 yards, and set for ranges over 300 after guesstimating with my scope. My bottom half crosshairs are 3 M.O.A., and total is 6 M.O.A. (½ = 3 M.O.A.). Adult checks are about 16″ high, and 8″ wide, so I can measure upright ones to 600 yards pretty accurately. It's probably a poor man's

Continued on next page

FORSTER IS QUALITY RELOADING & GUNSMITH TOOLS

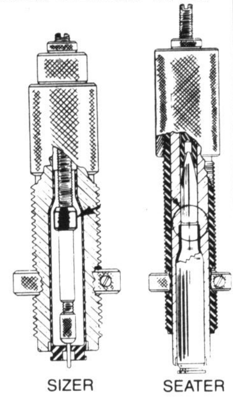
FORSTER CASE TRIMMER



Forster Products Case Trimmer is a precision, multipurpose tool. Forster accessories make it possible to perform many different case conditioning operations with this one versatile tool. Accessories include: Outside Neck Turner, Inside Neck Reamer, Deburring Tool and Adapter, Primer Pocket Cleaner, Primer Pocket Chamfering Tool and Hollow Pointer.

FORSTER/BONANZA BENCH REST® DIE SET

The E-Z OUT elevated Expander makes resizing a breeze. It starts expanding the case neck while case is still supported to prevent neck distortion. When seating bullets a sliding sleeve fully supports case body holding both bullet and case in perfect alignment. Available in 49 rifle calibers.



UNIVERSAL SIGHT MOUNTING FIXTURE

Save time mounting scopes, sights, beads. This fixture will handle *any length* bolt action, lever action or pump gun barrel. New size 3-56 bushings are available for mounting shotgun beads.

Also Available
- **Gun Screw Assortment**
- **Stockmakers Hand Screws**
- **Inletting Guide Screws**
- **Guard Screws**
- **Cartridge Case Length and Headspace gages**

Send 50¢ for Catalog

FORSTER PRODUCTS
87 Lanark Ave., Lanark, IL 61046 USA

RICK KAYSER

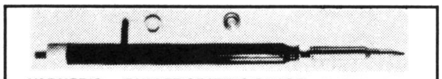
Continued

rangefinder, but so far it has worked fairly well.

It would seem that I kill a lot of chucks, but several of the area ranchers have told me "if you didn't kill so many, I'd have to put poison out to control them", so I am keeping poison away. I spent about 20 minutes yesterday, watching a golden eagle hunt. He made about a dozen passes before he found a slow (enough) ground squirrel that he could catch. It's interesting that eagles will take a dead meal, but none of the hawks will. Hawks also won't tackle anything that they can't kill, but our national symbol is either very self confident, or (more likely) terminally stupid. A few years back I watched a young golden eagle grab a badger by the rear end (the badger had been digging out a ground squirrel at the time). And get ripped to shreds . . . very small shreds . . . in about 3 seconds flat. Badgers are Baaad . . . even bears pretty much walk around them.

At any rate, I'm winding down the saga of the 7mm, the Weatherby brass, and rockchucks. I really enjoy Boyd Mace's recent articles on live varmint shooting . . . wish I could write like that! I've always loved shooting - of all kinds. I spent 4 years in the Army, including 2½ years in Vietnam as a Ranger. I guess that my first formal training in precision shooting was at an army sniper school run by a pudgy 2nd Lieutenant from Montana named Wiggins . . . or something like that. He sure could shoot a rifle though, and taught us what we needed to know. Shooting at unknown yardages, using a range finder/compensator scope on a .308 model 70 is tricky to learn. At least nowadays my targets don't shoot back, or booby-trap the neighborhood.

Rich Kayser
1820 5th St. South
Nampa, Idaho 83651



VARNER'S — BULLET SEATING GUAGE (LANDS FINDER)

This bullet seating guage will let you set your bullet seating die and then transfer your die to the loading press. It will place the bullet to the lands of your rifle without using any measuring devices whatsoever. It does it all for you. This guage keeps track of any washout in the lands of your rifle.

List Price (includes one case *$19.50*
Extra Cases .... *$ 4.00/ea.*
Postage .... *$ 2.00*

100% Money-Back Guarantee
ROUTE 2, BOX 167-A
ANTWERP, OHIO 45813
PHONE (419) 258-8631

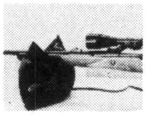
Patent
4,608,762

Featured in the American Rifleman Magazine, Oct. 1985.
If unavailable at your Dealer-Order direct from VARNER's.

VARNER'S INFLATABLE SANDBAG
(Patent Pending)

$27.50 ...... *Shipping $3.00*

For the marksman who likes to get on the bull's eye quickly, with better comfort and better accuracy when shooting. Just squeeze the bulb while looking through your scope and bingo, you're on!



DICK CUNDIFF

Dear Sir,

Thank you for your inquiry. Your ideas of a .17 caliber Benchrest rifle are similar to some suggestions that I had made to Dave Brennan several months ago. Of course John Gammuto has already experienced some good and bad points of a .17 caliber project. Personally I am all for assisting you with your project as long as you would except the fact this would be a totally experimental endeavor.

I am quite sure you are aware of the cost of rifle components in 1989, and I would guess the cost of a Stolle-Kelbly action to be right around $600 or $700. Shilen only furnishes a 1-10 twist for his .17 caliber barrels, which are button rifled. Ron Pence, who is a protege of Bob Sherer, makes a cut rifled and lapped barrel in this caliber. The only information I have concerning this barrel is that which was written by Mr. Gammuto in P.S. magazine. Usually the twist rate can be controlled more precisely with a cut rifling machine than with a button, therefore a 1-11 twist barrel might be available from Mr. Pence, who by the way has an ad in P.S. magazine.

If you were to furnish the SAKO or R.W.S. brass, I can form the Javelina cases for you for a reasonable fee. While writing this letter I received a call from a fellow who told me that Neil Jones would make anything you might need in the way of Benchrest loading tools for the .17 caliber. I am not sure about Wilson, as they have changed a lot since L.E. passed away. R.C.B.S. has 7/8-14 dies for just about anything you might come up with, and I know they always have a complete set of case forming and loading dies for the .17 Javelina.

My friend Alvin Davidson, in Las Cruces, New Mexico, is now making a nice little "depth checker" for the .17 caliber. He has been making some very high quality tools for the "Stool Shooters" for several years now, including a "depth checker" for the larger benchrest calibers, and the .17 is his latest innovation.

As you stated in your letter, this could turn into a costly project, but on the other hand, it could prove to be very rewarding from the standpoint of experimentation and discovery. This is the premise on which our sport was founded, and I would certainly like to be a part of that tradition.

I have never had any reason to use another powder in my .17's, as any of the 322 family has worked well for me.

My original load of GI-322 seems to exhibit an acceptable degree of accuracy and velocity within reasonable pressure levels. One very notable aspect of this caliber, is the fact that just a few tenths of the powder charge will raise pressures dramatically. I am not saying that N-201, 4198 or 4895 will not work, it is that I have had no reason to change especially with the price of reloading powder today. The original load that was used by the A&M Rifle Co. was 18.5 grains of 3031 for 3800 f.p.s., but this load was always too hot for the guns I made up in the early 1960's.

If you are planning to use Mr. Bergers fine .17 caliber bullets, I would suggest that you get your order in A.S.A.P. I understand that he is inundated with orders, and is about 60,000 bullets behind, but believe me they are worth the wait, as these are the finest bullets of this caliber I have used in almost 30 years shooting this caliber.

Personally I do not feel the .17-.221 has the powder capacity to achieve the velocity that is needed to buck the wind with this very small projectile. With the .22 caliber, you need 3300 to 3500 f.p.s. for extreme accuracy, but I feel that 3700 to 3800 f.p.s. is needed for the .17 caliber. Anything over this only adds to the barrel fouling problem. Of course up until recently the .17 has only been referred to as a devastating little varmint cartridge, where high velocity is the priority for most varmint shooters, accuracy is the goal of the Benchrester.

I would like to be involved with the further development of this caliber in the field of extreme accuracy. I would like to see it come to the time when we would have to adopt a new "ultra-light" varmint class for the upstart little .17. As any of our Benchrest craftsmen would tell you, I cannot guarantee any world class accuracy, from any rifle that I build, only quality workmanship.

Here are some of my labor prices.

Thread, fit, chamber barrel to most bolt actions	$150
Inlet and pillar bed stock blank (McMillan)	$150
Fill, prime and finish paint outside of stock	$150

.17 caliber stainless match barrels cost a little more than a .22 barrel does and are running around $225 at this time.

I hope I have been of some help to your inquiry and if I can assist you in any way please let me know.

Yours truly,
Richard E. Cundiff
905 Saratoga Way
Carson City, Nevada 89703

RON NOSACK

Dear Dave,

I just thought I would pass along a computer printout that I made, to help simplify measuring out small quantities of epoxy and hardener. Many times I only need a small amount of epoxy to do scope rings, or the final bedding of a stock. As you know, epoxies are usually thick and gummy, and the hardeners are usually like molasses. Accurate volume measurements are tough with both items sticking to the spoons. Since we all own accurate reloading scales which are calibrated in grains, I made up a spreadsheet that computes the correct amounts in grains. All I have to do is to enter the mix ratio (or other parameters), and the spreadsheet recomputes. I'm sending you the charts for Devcon and Bisonite, of which I am familiar. If you know of other ratios which will be of interest to your readers, let me know and I'll do others for you. I can change the other parameters just as easily, if you want different amounts or increments.

Since I mentioned bedding scope rings, let me tell you my thoughts on the subject. I've read the articles about lapping the rings before mounting the scope, but I don't think it accomplishes all that much. I've put my three Leupold target scopes on V-blocks and dial indicated them near the turrets to check for straightness. They are not straight! The turrets are probably threaded with taps and the tubes with dies, and we can expect the normal results that come from this method. Also, the tubes are not always one inch in diameter, (mine vary from .995 to 1.004), and they aren't round either. The front tube on one of mine is oval by several thousandths. Someone might think that perhaps scope rings distorted the tubes, but even the forward areas of the front tube that have never touched a scope ring, still show these anomalies. I may be wrong, but I believe these tubes are made from extrusions. This means that the aluminum is forced by tremendous pressure through a die to its tubular shape. That's how lawn chairs are made too. Why align the scope rings if the tubes are not aligned on axis, and are not round? When checking a rifles' bedding, I use the dial indicator method. Once, out of curiosity, using the same technique, I loosened and tightened the Redfield Big Bore rings on my 40-XC with a coin, and watched the result. The barrel would move four or five thousandths in relationship to the stock! Bedding the botton half of the rings eliminated all movement.

I hope this letter will loosen up some more ideas about scopes and mounting systems. Many people criticize the Unertl type mounting system, but it certainly doesn't distort the action when you mount it. I would like to see one of your experimental types, dismount their regular scope and then mount a Unertl scope on the action and barrel. The barrel doesn't have to be a prized one, but one that will produce consistent results. Testing under good conditions should show if there is any change. So far as I know, no one has ever done a definitive test of this type. Any takers?

Sincerely,
Ronald P. Nosack

10810 Harmon Rd.
Berlin Hts. OH 44814
(419) 588-2918

Continued on next page

THE BEST OF PRECISION SHOOTING

VOLUME ONE

August, 1982 - February 1986

Now available — 164 pages

The most popular articles from the first three and a half years
of Dave Brennan's editorship.

Price is $8.50, plus $2.50 shipping and handling.
(Foreign postage is $5.00 Surface Delivery, and $13.00 Air Mail)
Make checks payable to Precision Shooting
You may order from: John Hollister, R.D. #2,
Box 2395, Whitehall, New York 12887-9539.

Also available from these sources: R.W. Hart & Son, Inc.,
Bruno Shooters Supply, Sinclair International, Inc.
and Custom Products

```
                                                  BISONITE MIX RATIO
      ENTER MIX RATIO )))))))))))       32        ==================
                                    ---------          32 TO 1
      ENTER STARTING FIGURE )))))      100            BY WEIGHT
                                    ---------
      ENTER INCREMENT STEPS )))))       10                                        ENTER UNIT OF MEASUREMENT )     gr.
                                    ---------                                                                  ---------

     EPOXY        HARDENER                     EPOXY     HARDENER                      EPOXY     HARDENER
    -------       --------                    --------   --------                    --------   --------
    100 gr.        3.1 gr.                    600 gr.     18.8 gr.                   1100 gr.     34.4 gr.
    110 gr.        3.4 gr.                    610 gr.     19.1 gr.                   1110 gr.     34.7 gr.
    120 gr.        3.8 gr.                    620 gr.     19.4 gr.                   1120 gr.     35.0 gr.
    130 gr.        4.1 gr.                    630 gr.     19.7 gr.                   1130 gr.     35.3 gr.
    140 gr.        4.4 gr.                    640 gr.     20.0 gr.                   1140 gr.     35.6 gr.
    150 gr.        4.7 gr.                    650 gr.     20.3 gr.                   1150 gr.     35.9 gr.
    160 gr.        5.0 gr.                    660 gr.     20.6 gr.                   1160 gr.     36.3 gr.
    170 gr.        5.3 gr.                    670 gr.     20.9 gr.                   1170 gr.     36.6 gr.
    180 gr.        5.6 gr.                    680 gr.     21.3 gr.                   1180 gr.     36.9 gr.
    190 gr.        5.9 gr.                    690 gr.     21.6 gr.                   1190 gr.     37.2 gr.
    200 gr.        6.3 gr.                    700 gr.     21.9 gr.                   1200 gr.     37.5 gr.
    210 gr.        6.6 gr.                    710 gr.     22.2 gr.                   1210 gr.     37.8 gr.
    220 gr.        6.9 gr.                    720 gr.     22.5 gr.                   1220 gr.     38.1 gr.
    230 gr.        7.2 gr.                    730 gr.     22.8 gr.                   1230 gr.     38.4 gr.
    240 gr.        7.5 gr.                    740 gr.     23.1 gr.                   1240 gr.     38.8 gr.
    250 gr.        7.8 gr.                    750 gr.     23.4 gr.                   1250 gr.     39.1 gr.
    260 gr.        8.1 gr.                    760 gr.     23.8 gr.                   1260 gr.     39.4 gr.
    270 gr.        8.4 gr.                    770 gr.     24.1 gr.                   1270 gr.     39.7 gr.
    280 gr.        8.8 gr.                    780 gr.     24.4 gr.                   1280 gr.     40.0 gr.
    290 gr.        9.1 gr.                    790 gr.     24.7 gr.                   1290 gr.     40.3 gr.
    300 gr.        9.4 gr.                    800 gr.     25.0 gr.                   1300 gr.     40.6 gr.
    310 gr.        9.7 gr.                    810 gr.     25.3 gr.                   1310 gr.     40.9 gr.
    320 gr.       10.0 gr.                    820 gr.     25.6 gr.                   1320 gr.     41.3 gr.
    330 gr.       10.3 gr.                    830 gr.     25.9 gr.                   1330 gr.     41.6 gr.
    340 gr.       10.6 gr.                    840 gr.     26.3 gr.                   1340 gr.     41.9 gr.
    350 gr.       10.9 gr.                    850 gr.     26.6 gr.                   1350 gr.     42.2 gr.
    360 gr.       11.3 gr.                    860 gr.     26.9 gr.                   1360 gr.     42.5 gr.
    370 gr.       11.6 gr.                    870 gr.     27.2 gr.                   1370 gr.     42.8 gr.
    380 gr.       11.9 gr.                    880 gr.     27.5 gr.                   1380 gr.     43.1 gr.
    390 gr.       12.2 gr.                    890 gr.     27.8 gr.                   1390 gr.     43.4 gr.
    400 gr.       12.5 gr.                    900 gr.     28.1 gr.                   1400 gr.     43.8 gr.
    410 gr.       12.8 gr.                    910 gr.     28.4 gr.                   1410 gr.     44.1 gr.
    420 gr.       13.1 gr.                    920 gr.     28.8 gr.                   1420 gr.     44.4 gr.
    430 gr.       13.4 gr.                    930 gr.     29.1 gr.                   1430 gr.     44.7 gr.
    440 gr.       13.8 gr.                    940 gr.     29.4 gr.                   1440 gr.     45.0 gr.
    450 gr.       14.1 gr.                    950 gr.     29.7 gr.                   1450 gr.     45.3 gr.
    460 gr.       14.4 gr.                    960 gr.     30.0 gr.                   1460 gr.     45.6 gr.
    470 gr.       14.7 gr.                    970 gr.     30.3 gr.                   1470 gr.     45.9 gr.
    480 gr.       15.0 gr.                    980 gr.     30.6 gr.                   1480 gr.     46.3 gr.
    490 gr.       15.3 gr.                    990 gr.     30.9 gr.                   1490 gr.     46.6 gr.
    500 gr.       15.6 gr.                   1000 gr.     31.3 gr.                   1500 gr.     46.9 gr.
    510 gr.       15.9 gr.                   1010 gr.     31.6 gr.                   1510 gr.     47.2 gr.
    520 gr.       16.3 gr.                   1020 gr.     31.9 gr.                   1520 gr.     47.5 gr.
    530 gr.       16.6 gr.                   1030 gr.     32.2 gr.                   1530 gr.     47.8 gr.
    540 gr.       16.9 gr.                   1040 gr.     32.5 gr.                   1540 gr.     48.1 gr.
    550 gr.       17.2 gr.                   1050 gr.     32.8 gr.                   1550 gr.     48.4 gr.
    560 gr.       17.5 gr.                   1060 gr.     33.1 gr.                   1560 gr.     48.8 gr.
    570 gr.       17.8 gr.                   1070 gr.     33.4 gr.                   1570 gr.     49.1 gr.
    580 gr.       18.1 gr.                   1080 gr.     33.8 gr.                   1580 gr.     49.4 gr.
    590 gr.       18.4 gr.                   1090 gr.     34.1 gr.                   1590 gr.     49.7 gr.
```

```
                                                         DEVCON F2 MIXING RATIO
    ENTER MIX RATIO ))))))))))))        9                =========================
                              ---------                          9 TO 1
    ENTER STARTING FIGURE )))))      100                       BY WEIGHT
                              ---------
    ENTER INCREMENT STEPS )))))       10                                        ENTER UNIT OF MEASUREMENT )      gr.
                              ---------                                                                    ---------

   EPOXY          HARDENER                       EPOXY        HARDENER                        EPOXY     HARDENER
  -------         --------                      --------      --------                       --------   --------
  100 gr.         11.1 gr.                      600 gr.          66.7 gr.                    1100 gr.        122.2 gr.
  110 gr.         12.2 gr.                      610 gr.          67.8 gr.                    1110 gr.        123.3 gr.
  120 gr.         13.3 gr.                      620 gr.          68.9 gr.                    1120 gr.        124.4 gr.
  130 gr.         14.4 gr.                      630 gr.          70.0 gr.                    1130 gr.        125.6 gr.
  140 gr.         15.6 gr.                      640 gr.          71.1 gr.                    1140 gr.        126.7 gr.
  150 gr.         16.7 gr.                      650 gr.          72.2 gr.                    1150 gr.        127.8 gr.
  160 gr.         17.8 gr.                      660 gr.          73.3 gr.                    1160 gr.        128.9 gr.
  170 gr.         18.9 gr.                      670 gr.          74.4 gr.                    1170 gr.        130.0 gr.
  180 gr.         20.0 gr.                      680 gr.          75.6 gr.                    1180 gr.        131.1 gr.
  190 gr.         21.1 gr.                      690 gr.          76.7 gr.                    1190 gr.        132.2 gr.
  200 gr.         22.2 gr.                      700 gr.          77.8 gr.                    1200 gr.        133.3 gr.
  210 gr.         23.3 gr.                      710 gr.          78.9 gr.                    1210 gr.        134.4 gr.
  220 gr.         24.4 gr.                      720 gr.          80.0 gr.                    1220 gr.        135.6 gr.
  230 gr.         25.6 gr.                      730 gr.          81.1 gr.                    1230 gr.        136.7 gr.
  240 gr.         26.7 gr.                      740 gr.          82.2 gr.                    1240 gr.        137.8 gr.
  250 gr.         27.8 gr.                      750 gr.          83.3 gr.                    1250 gr.        138.9 gr.
  260 gr.         28.9 gr.                      760 gr.          84.4 gr.                    1260 gr.        140.0 gr.
  270 gr.         30.0 gr.                      770 gr.          85.6 gr.                    1270 gr.        141.1 gr.
  280 gr.         31.1 gr.                      780 gr.          86.7 gr.                    1280 gr.        142.2 gr.
  290 gr.         32.2 gr.                      790 gr.          87.8 gr.                    1290 gr.        143.3 gr.
  300 gr.         33.3 gr.                      800 gr.          88.9 gr.                    1300 gr.        144.4 gr.
  310 gr.         34.4 gr.                      810 gr.          90.0 gr.                    1310 gr.        145.6 gr.
  320 gr.         35.6 gr.                      820 gr.          91.1 gr.                    1320 gr.        146.7 gr.
  330 gr.         36.7 gr.                      830 gr.          92.2 gr.                    1330 gr.        147.8 gr.
  340 gr.         37.8 gr.                      840 gr.          93.3 gr.                    1340 gr.        148.9 gr.
  350 gr.         38.9 gr.                      850 gr.          94.4 gr.                    1350 gr.        150.0 gr.
  360 gr.         40.0 gr.                      860 gr.          95.6 gr.                    1360 gr.        151.1 gr.
  370 gr.         41.1 gr.                      870 gr.          96.7 gr.                    1370 gr.        152.2 gr.
  380 gr.         42.2 gr.                      880 gr.          97.8 gr.                    1380 gr.        153.3 gr.
  390 gr.         43.3 gr.                      890 gr.          98.9 gr.                    1390 gr.        154.4 gr.
  400 gr.         44.4 gr.                      900 gr.         100.0 gr.                    1400 gr.        155.6 gr.
  410 gr.         45.6 gr.                      910 gr.         101.1 gr.                    1410 gr.        156.7 gr.
  420 gr.         46.7 gr.                      920 gr.         102.2 gr.                    1420 gr.        157.8 gr.
  430 gr.         47.8 gr.                      930 gr.         103.3 gr.                    1430 gr.        158.9 gr.
  440 gr.         48.9 gr.                      940 gr.         104.4 gr.                    1440 gr.        160.0 gr.
  450 gr.         50.0 gr.                      950 gr.         105.6 gr.                    1450 gr.        161.1 gr.
  460 gr.         51.1 gr.                      960 gr.         106.7 gr.                    1460 gr.        162.2 gr.
  470 gr.         52.2 gr.                      970 gr.         107.8 gr.                    1470 gr.        163.3 gr.
  480 gr.         53.3 gr.                      980 gr.         108.9 gr.                    1480 gr.        164.4 gr.
  490 gr.         54.4 gr.                      990 gr.         110.0 gr.                    1490 gr.        165.6 gr.
  500 gr.         55.6 gr.                     1000 gr.         111.1 gr.                    1500 gr.        166.7 gr.
  510 gr.         56.7 gr.                     1010 gr.         112.2 gr.                    1510 gr.        167.8 gr.
  520 gr.         57.8 gr.                     1020 gr.         113.3 gr.                    1520 gr.        168.9 gr.
  530 gr.         58.9 gr.                     1030 gr.         114.4 gr.                    1530 gr.        170.0 gr.
  540 gr.         60.0 gr.                     1040 gr.         115.6 gr.                    1540 gr.        171.1 gr.
  550 gr.         61.1 gr.                     1050 gr.         116.7 gr.                    1550 gr.        172.2 gr.
  560 gr.         62.2 gr.                     1060 gr.         117.8 gr.                    1560 gr.        173.3 gr.
  570 gr.         63.3 gr.                     1070 gr.         118.9 gr.                    1570 gr.        174.4 gr.
  580 gr.         64.4 gr.                     1080 gr.         120.0 gr.                    1580 gr.        175.6 gr.
  590 gr.         65.6 gr.                     1090 gr.         121.1 gr.                    1590 gr.        176.7 gr.
```

ACTIONS, BARRELS, AND GUNSMITHS - 1989

JOHN J. GAMMUTO

This time last year we published an article entitled "Top Ten Actions and Barrels 1986-1988." Many of you wrote and expressed the opinion that it was most informative and that future purchases would be tempered by the results of the report. This kind of feedback is always welcome. It's good to know that you're out there and appreciate this level of detail.

The top ten action and barrel makers were equally pleased when people called them and placed orders. When you deal in quality merchandise, an informed consumer is your best salesman. The article made Hart Rifle Barrels so happy that they decided to reference the findings of the report in their current ad. Of course, if you were responsible for approximately 50% of all top ten wins four years running, you'd be proud too. This is equally true of the men behind Stolle and Hall actions. Looking at the graphics you will see they are at the head of the class, and these statistics are representative of the past five years or so. There hasn't been any great changes in this area; the edge going to George Kelbly and his fine line of Stolle actions. Ed Shilen's actions and barrels can always be found in top 10 equipment lists anywhere in the benchrest world, it's not surprising to see his products doing so well.

My first inclination when considering this year's article was to follow up by applying the new data to the existing format and leaving it at that. Then I thought it might be more fair to start fresh and publish only the names of the top ten winners in the 1989 season, including those with a single win. There are some relatively new barrels and actions on the market these days, and I'd like to give them the exposure they deserve.

Occasionally someone will chamber up a barrel that was drilled and rifled by Clyde Hart himself, but it is the exception rather than the rule. Most of those original barrels are long gone. I would venture to say that there are very few, if any, sitting in corners waiting for the right action to come along. In the past these barrels and others, that are no longer commercially available, were lumped into the "other" category along with those that did not accumulate a significant number of wins.

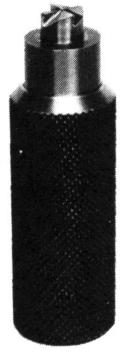
The market seems to be stable enough to rethink some of the headers on the report. I believe Mr. Lilja, Mr. Chanlynn, and our Canadian friend, Mr. McClellan, are here to stay. I know this decision will at least make them happy and possibly several others that have just entered the marketplace. My only suggestion to the fellas that have not recorded any top ten wins as of yet is, sell more barrels and actions to "crack shots" rather than "crack pots." Winning matches at this level of competition is not solely reserved for those with the best equipment. It takes a tough and competition-wise competitor to push equipment to its full potential and win matches. The new kid on the block with respect to equipment is a tough position to be in these days. It takes some guts to put your reputation on the line with an unknown or untested product, and I believe this is the reason that some of our newer suppliers have yet to join the elite top ten circle. It's not easy to convince people to try something new when they have only known success with another product.

Any top ten win in the three most prestigious benchrest tournaments is a significant accomplishment and worthy of note. As you will see, there was a bit more cooperation from individual shooters this season with respect to filling out match registration forms. Only two actions and one barrel were not identified by their owners during this report period. If you would like to know why they were omitted ask Tony Boyer and Perry Morton. I'm sure there MUST be a reason for not acknowledging their suppliers and craftsmen. I know if I had made one of those two winning barrels and didn't get credit for it, I'd want to know why.

As you can see on the spreadsheet, there are 100 possible top ten wins, 20 at the Super Shoot, 40 in the IBS National Championships, and another 40 in the NBRSA Championships. This makes it very easy to calculate market share from year to year, one win = 1%. It's as simple as that.

As an extra this year I've included the names of the top 20 gunsmiths for the same tournaments and report period. There were approximately 40 gunsmiths and fellas that did their own chambering work for the top 100 positions. Many of them are not professional gunsmiths and choose only to work on their own equipment; therefore, I didn't list them all.

Heading up the top of the list is the famous or infamous (depending on how close you are standing to the big guy) Clarence Hammond. His skills and accomplishments are known throughout the benchrest world.



MATCH PREP
PRIMER POCKET TOOL

This competition-grade lifetime carbide tool cuts pockets to SAAMI specs, precise depth, bottom flat, for uniform primer seating conditions. Continued use keeps pocket clean. Specify large rifle or small rifle, each priced $20 plus $1 shipping. **Whitetail Design & Engineering Ltd., 9421 E. Mannsiding Road, Clare, Michigan 48617**

ORDER FROM

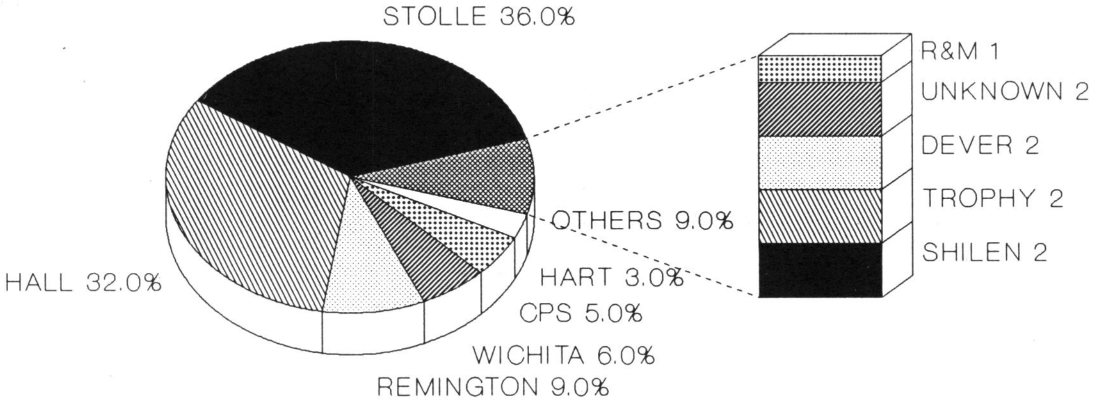
WHITETAIL DESIGN & ENGINEERING LTD.

Dept. PS, 9421 E. Mannsiding Rd.
Clare, Michigan 48617

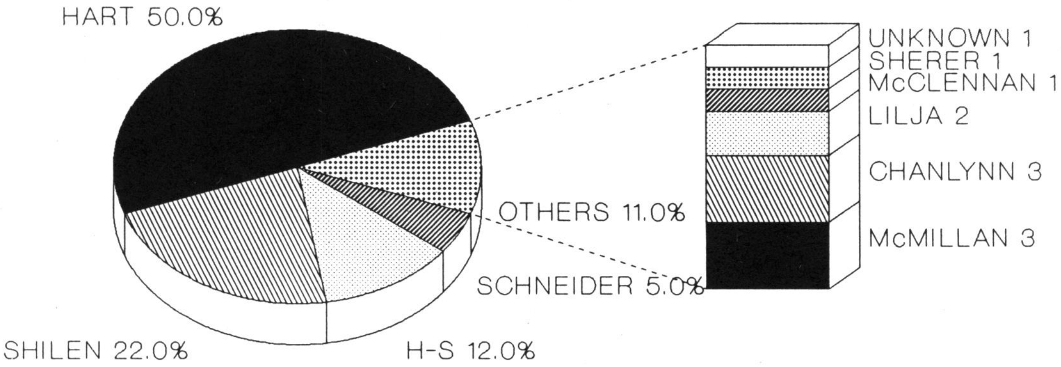
NRA GUNSMITHING SCHOOLS

NRA GUNSMITHING PROGRAM
AT
ROCHESTER INSTITUTE OF TECHNOLOGY
1990 RIT/NRA SUMMER GUNSMITHING WORKSHOPS
FEATURING: JERRY HART - HART RIFLE BARRELS
ACTION PREPARATION & CUSTOM CHAMBERING
AL HAUSER - BLUEING & POLISHING
FOR INFORMATION ON THESE AND OUR OTHER SUMMER OFFERINGS, WRITE:
RIT/NRA Summer Gunsmithing Schools
College of Fine and Applied Arts
Rochester Institute of Technology
P.O. Box 9887
Rochester, NY 14623-0887

TOP 10 ACTIONS - 1989
MAJOR BENCHREST TOURNAMENTS



TOP 10 BARRELS - 1989
MAJOR BENCHREST TOURNAMENTS



He is well on his way to becoming a legend in his own time, slightly reminiscent of the skilled accomplishments of Fred Sinclair. It is also interesting to note that rifles built by Fred Sinclair are sill taking plaques and cups, even though he hasn't built one in several years. Right on the heels of Mr. Hammond is the ever dutiful and often controversial Seely Masker. His rifles of late seem to be capturing more silverware than they have in the past. He has several fine shooters in his corral and they do him proud every time they take a seat up on the line. Fred Hasecuster's gunsmithing skills are widely known and his rifles did register a significant number of wins this season, but I believe he would have placed higher if he had spent more time chambering up varmint class rifles than he did building his highly competitive unlimited class rail guns. Fred chambered up a short 6BR for me this winter. If my name appears anywhere in the top ten next year you only have him to blame! The rest of the fellas on the top 20 gunsmith list are all advanced competitors and obviously know their way around a machine shop. I hope the next time you see them you take the time to congratulate them on their achievements last season. Like I said earlier, even one win at this level is a significant accomplishment. There is no other shooting discipline that demands as much from their manufacturers, tradesmen, and suppliers than the benchrest community. They are truly the chosen few.

John J. Gammuto

Continued on next page

1989 ACTION AND BARREL REPORT
(MAJOR BENCHREST TOURNAMENTS)

MATCH DATA				ACTIONS											BARRELS									
EVENT	DATE	CLS	TOP	CPS	HALL	REM	STOL	SHLN	HART	WICH	TRPY	R&M	DEVR	?	HART	SHLN	LILJ	H-S	SCHN	McML	McCL	SHER	CHAN	?
SUPER SHOOT XVII	5-89	10½	10		2	1	7								4	4	1		1					
SUPER SHOOT XVII	5-89	HV	10		3		4			2			1		6	2			1		1			
NBRSA NATIONALS	7-89	LV	10		4	2	4								4	3		2	1					
NBRSA NATIONALS	7-89	HV	10	1	1		6						1	1	3	3		1	1	1				1
NBRSA NATIONALS	7-89	UN	10		3	1	4	1		1					8	1						1		
NBRSA NATIONALS	7-89	SP	10		6	1	2		1						4	2		3	1					
IBS NATIONALS	8-89	HB	10	1	3		2		1	2				1	6	2		2						
IBS NATIONALS	8-89	SP	10	1	4	2	1				1	1			6	1		2					1	
IBS NATIONALS	8-89	LV	10	2	2	1	4				1				7	1	1						1	
IBS NATIONALS	8-89	HV	10		4	1	2	1	1	1					2	3		2		2			1	
TOTAL 1989 TOP 10 WINS				5	32	9	36	2	3	6	2	1	2	2	50	22	2	12	5	3	1	1	3	1

ACTIONS: CPS=CPS, HALL=HALL MANUFACTURING, REM=REMINGTON, STOL=STOLLE, SHLN=SHILEN RIFLES, HART=R.W. HART & SON, WICH=WICHTA ARMS, TRPY=TROPHY ACTIONS, R&M=R&M PRECISION, DEVR=DEVER, ?=NOT IDENTIFIED.

BARRELS: HART=HART RIFLE BARRELS, SHLN=SHILEN RIFLES, LILJ=LILJA RIFLE BARRELS, H-S=H-S PRECISION, SCHN=SCHNEIDER RIFLE BARRELS, McML=McMILLAN, McCL=McCLENNAN, SHER=SHERER, CHAN=CHANLYNN, ?=NOT IDENTIFIED.

TOP TWENTY GUNSMITHS AND NUMBER OF TOP TEN WINS
(SAME REPORT PERIOD AND TOURNAMENT SCHEDULE)

HAMMOND	14	JARRETT	4	GREENAWALT	3	HOLLISTER	2
MASKER	11	BROUGHTON	4	RENEAU	2	HOEHN	2
HASECUSTER	7	BORDEN	4	MILLER	2	FRITZ	2
WEIDER	4	WAGNER	3	MANNING	2	DIXON	2
SINCLAIR	4	ROLLER	3	JOHNSON	2	BELL	2

PRODUCT DEVELOPMENT

FACT AND FICTION

JOHN J. GAMMUTO

Most people realize that new products surface as a result of need and varied economic considerations. The game of benchrest shooting is somewhat unique in that component development does not exclusively come from the drawing boards of large corporations. In fact, most innovative products these days are the result of individual efforts, i.e., someone recognizing a need and deciding to do something about it. Unfortunately, the product's usefulness or application sometimes over shadows the person responsible for it. As an example, do you know who the first person was to sleeve an action? Probably not, and that's a shame, because the man is still an active competitor. Many of you know him personally and all of you would at least recognize his name.

The world of product development is not always as rewarding and glamorous as it might seem to the casual observer. True innovative efforts often fail to meet their stated goals or objectives, and failure becomes a sad reality. Often, this is difficult to accept, especially after a large sum of money has been invested. An honest man, after exploring all of his options, drops the subject, and moves on to something else. He does not try and sell his failure to others by making shallow promises and less than honest claims.

There have been those who have laid claim to having "improved" something when all they've really managed to do is cheapen the original concept, possibly make it less effective, and create a market that brings them financial reward. In the past two years or so I can think of a couple of products that fit this description. I'm amazed when I see these things selling like hotcakes.

I always thought of the benchrest clan as a technically superior group of individuals that had more sense than to be taken in by enchanting potions, magic mechanisms, and unscientific notions. I wish I could print the names of a few such products for you, but you know how that goes. If I did, it would only be a matter of days before I would hear from some slick barrister seeking damages for my slanderous utterances., When a product fails to live up to its claims a good con man waits for someone to slander it and then turns to the judicial system for compensation.

It shouldn't be very hard for you to come up with a couple of "accuracy-related products" that fit this description. Think of the products that have been introduced in the past couple of years, consider their claims, whether or not they are being used today, or even sold. (That's about all the help my lawyer says I can afford, so you're on your own.)

If there is any justice in all of this it is the fact that the "pretenders" usually go broke within a relatively short period of time. Unfortunately, many of them have financed their business ventures with the money and good names of others. This has, on occasion, hurt some honest and well-intentioned people.

There are a couple of things we can do to protect ourselves from those who would take advantage of our competitive "madness". Don't buy things just because they are available or you heard so-and-so uses one, of Joe's friend Sam makes 'em, or worst of all adopt the "What the hell's another $50 or $100" attitude. Try and curb your appetite for untested equipment, fancy gadgets, and AVOID panic buying. "Panic buying" is something we all have done from time to time and it goes something like this.

You're on the line shooting like a horse's patoot and Joe Whogeevsashtt (the worst shooter at the match) is beating your brains out with his new "thingamajigger." The first thing any experienced shooter does is reach into his bag of excuses and lay one on 'em. "Em" being the 10,000+ buggers standing behind the line looking at your target with 300X scopes . . . and laughing. You just know they can't wait to get home, to places you never even heard of, and tell everyone else what a knucklehead you are.

What you do next is "panic buy" one of those "thingamajiggers" that Joe Whogeevsashtt embarrassed you with. It couldn't be that you just shot numskull style!*? Nope, it was that "thingamajigger"

Continued on next page

CARBIDE MANDRELS

22 cal
6 mm
25 cal
7 mm
30 cal

Hart & Sinclair
Neck Turners
$50 each

VINCE GIAIMO
WESTCHESTER CARBIDE
148 Wheeler Ave.
Pleasantville, NY 10570
914 769-1445

SHILEN RIFLES CONGRATULATES

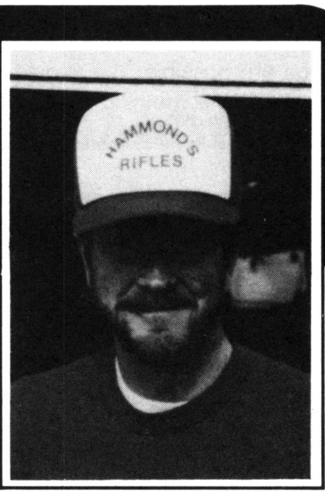
SMILEY HENSLEY
OF ELKTON, VIRGINIA

Overall 1989 Super Shoot Champion

Smiley Hensley shot a tournament Heavy Varmint 100-yard record (.080), won the Sporter Class Grand Aggregate, and the prestigious 2-Gun Championship. Smiley's rifles, 'smithed by Clarence Hammonds, are fitted with Shilen Select Match barrels.

That Smiley and Clarence rely on our barrels for winning performance is a source of pride and inspiration to everyone at Shilen Rifles.

MasterCard VISA



For information on the complete line of Shilen products send $3.00 for a set of up-to-date Data Sheets.

SHILEN DGA RIFLES

SHILEN RIFLES, INC.
205 Metro Park Blvd. • Ennis, Texas 75119
(214) 875-5318

PRODUCT DEVELOPMENT

Continued

all right. How can you compete against one of them? You gotta get ya one of 'em and right fast. Before you know it you're running around like a one eyed dog in a meat market looking for someone to sell you one of the "thingamajiggers" with the deluxe "whozaacallits" for magnified staration and rotational galaxation of the stanafranze. (Brennan bought one of these last year and it didn't do him a bit of good. That's why I didn't get one!)

You get the point don't you? Think before you buy something and don't temper your purchases with your own insecurities or shortcomings. There are plenty of WORTHWHILE products to spend your money on.

Many successful and widely accepted products have been marketed in the past few years and have significantly contributed to lowering individual yardage and aggregate scores. Talk to other shooters, suppliers, and manufacturers before you reach into that wallet. A little common-sense and forethought will save you a lot of money and aggravation.

What is it that motivates someone to strike out on his own and build a better mouse trap? Certainly economic factors weigh heavily into any discussion of this nature, but more than that, I believe it has been and will remain to be individual pride, and a general unwillingness to accept things as they are.

Max Planck (1858-1947), in *The Universe of the Light of Modern Physics* wrote, "We have no right to assume that any physical law exists, or if they have existed up to now, they will continue to exist in a similar manner in the future." What this means to me is that all things are possible. We should not assume to KNOW something today, when the possibilities of tomorrow are so exciting. Dreamers have brought us this far. Let's not discourage the few we do have today by not listening to them.

If a man comes up with something of value, honestly represents it, and assigns a reasonable dollar value to it, I think he deserves our support and recognition. Fair compensation is another matter. It doesn't always work out the way it should, but that is another subject. I'm sure that one or two of the fellas I solicited comments from will touch on this subject, so I'll leave it at that.

John J. Gammuto

P.S. I've got a closet full of "thingamajiggers" to sell if you're interested.

FRED SINCLAIR

John,

You stated in your letter, the majority of the benchrest gadgets and rifle components which are in use today came from the minds of the innovative shooter/handloader who felt that the particular item might gain him an edge on the shooting competition.

After all, the reason we keep score is to see if we can out do someone or something. Doesn't matter if we are shooting against 200 other people or trying to wring that last ounce of accuracy out of some cantankerous hunting rifle. We are competing.

It's the American way.

With the exception of sand bags, all of the benchrest equipment used today, including rifle components, was developed with this goal in mind. (It is unfortunate that benchrest politics prevent this progressive thinking from being applied to the antiquated sand bag.)

Most of the early benchrest shooters were machinists or people with mechanical abilities who had the knowledge and equipment to produce the tools and accessories which were needed. If they were not mechanics their shooting buddy was and could be "conned" into making those little gadgets for him.

Today, with greater numbers of active benchrest shooters and with increased interest shown by other accuracy minded (non-benchrest) shooters the demand for these specialized tools has increased to a point where it has created a separate market place. A direct bi-product of benchrest shooting, even some of the major manufacturers have gotten into the act.

More and more people are looking to gain the edge, that at one time, only competitive shooters enjoyed.

Our business, as well as others, is built around just this marketplace, but I must admit that I really doubt that today's selection of gadgets contains many "new" or "trick" ideas that were not in use by one or more shooters 10 or 12 years ago.

Leafing through the ads in the last issue of PS I honestly do not see a gadget that is not a copy or a variation of something else that has been around for at least the last 10 years.

If one was an historian of benchrest loading tools and accessories it would be quite obvious that "there ain't nut'n" new under the sun.

L.E. "Sam" Wilson tools are a prime example, most were developed in the 1940's and 50's. Homer Culver! What can I say, the man behind the powder measure modifications, primer pocket uniformers, and a host of other tools. His tools and ideas have been in use for the last 30 or more years.

In the 1950's neck turning tools and flashole deburring tools were being used by shooters like Bob Hart, Sr., Paul Gotschall, Paul Marquart, and Ferris Pindell. I think Hart and/or Marquart were the first to market such tools.

I purchased my first micrometer type bul-

PENCE
PRECISION BARRELS
17 Cal.-50 Cal. Cut Riflings
Hand-Lapped
Stainless Steel Rifle Barrels

Engineered By: R.G. Sherer
Owner/Operator: Ron Pence

Free Price List Available

PENCE PRECISION BARRELS
R.R. # 2 Rd. 900 S.
S. Whitley, In. 46787
219-839-4745

KELBLY, INC.
Manufacturers of - - - -

— *the Stolle Panda, Polar, Kodiak, and Teddy Actions*

We are now making 30mm scope rings to fit Stolle actions and Davidson bases.

We also provide a wide range of gunsmithing services, including chambering and complete rifles.

7222 Dalton Fox Lake Road
No. Lawrence, Ohio 44666
(216) 683-4674

THE ULTIMATE IN RIFLE ACCURACY
by Glenn Newick

The benchrest oriented handbook for anyone interested in shooting small groups. Chapters include: parts of the rifle, bullets, scopes, case preparation, load selection, bench technique, wind shooting, and troubleshooting. Help for any shooter looking for perfect scores, varmints, or big game.
Signed copies only $34.95 postpaid.
Glenn Newick, 6601 Kirby Drive #527, Houston, Texas 77005

let seater from Art Freund about 15 years ago.

Custom priming tools? The first "class act" has to go back to Harry Pope.

One of the first tools to be retailed from our shop, our action cleaning tool, was a modified version of a tool which Roy Dunlap made 20 years earlier.

I wish I could take credit for all the tools in my catalog, but the truth is, credit must go to the people who supplied me with ideas and/or prototypes, to name a few; Chet Brown, Alvin Davidson, Bill Forster, John Hastings, Dick Lee, John Leu, and the above mentioned individuals. I can take full credit for only a few.

At first glance one might get the impression that there has not been any advancement in this area, not so. As you stated, the desire for a better mouse trap is constantly improving and upgrading the available products.

This where the beauty of the situation comes into play, the refinements and improvements which are constantly being made to existing tools and ideas, is sorta' like having our own "think tank" consisting of shooters from all eras. Shooters with a single interest, the improvement of accuracy.

Such an arrangement allows all of us, shooter and manufacturer alike, to share the knowledge and wisdom which has evolved from the sport of benchrest shooting.

I see that not all manufacturers share my view, as a few have applied for patents. This appears a bit selfish or greedy, not to mention what it does to their merchandise costs, but such actions are futile, because the improvement cycle will go on. What may be "new" today will be "old" or obsolete tomorrow.

Design changes are made for any number of reasons; to improve function, cost, appearance. If this is done without cheapening it or making it less effective, as you said, we all reap the benefits.

The advantages in the increased availability of such tools is, that not only does the consumer have the luxury to "pick and choose" the quality, price and service, but also the constant improvement of the gadgets.

Fred

MYLES HOLLISTER

What motivates someone to strike out on his own and build a better mouse trap? I believe it's the need to improve or to make something work better.

A prime example of this is Homer Culver's conversion of the Lyman powder measure. He certainly had a dramatic impact on the way we measure and throw powder charges. There is no question he satisfied a need.

When Homer first made these conversions I don't believe he ever realized the demand would be as great as it has been all these years.

Dr. Lou Palmisano and Ferris Pindell certainly had a vision when they developed the PPC case. After all these years it still remains to be the most consistent and accurate cartridge ever developed. These men did us all a great service. The PPC cartridge either presently holds or has held almost every major benchrest record in the world. Lou and Ferris's hard work paid off.

Clyde Hart also had a dream. He thought he could make a better rifle barrel. He proved his theories were correct.

Sometimes these ideas or inventions turn out to be profitable. But, there are many improvements or inventions that do not financially reward their authors. A good example of this is the PPC case. Dr. Palmisano poured a lot of his own money into this project and never realized the profit he should have.

Most people don't realize what an uphill battle it is to develop a better mouse trap. We tend not to give credit where credit is due. I think a lot of it has to do with our own egos. Could it be that we are a bit jealous that someone else thought of it first?

When the sporter class was developed, and you had to use 6mm bullets or larger, it was Clarence Detsch that first built benchrest quality bulletmaking dies. Think of all the people in the shooting game who have benefited from Clarence's efforts.

Some large companies also recognize the need for something better and act on it. Leupold's introduction of the BR36 target scope in 1989 is a good example of this.

The benchrest clan as a rule are a very imaginative group and never seem to be quite satisfied with what they have. This is how it all comes about. Let's hope it never changes.

Best regards,
Myles

ALVIN DAVIDSON

In regard to your inquiry regarding new product development and motivation.

By already having a machine shop there never was a financial risk of any significant degree to the introduction of any of my products. A little time, material, and advertising is all it took.

Part of the items were my own ideas, created out of need. Sometimes a couple of

Continued on next page

JIM GREENAWALT

— CUSTOM PAINTING
— MURALS AND
AIR BRUSH WORK
— BOLT IN'S AND GLUE IN'S
— ACTION WORK
— CHAMBER WORK
— BARREL'S FLUTED
— COMPLETE RIFLES BUILT
— POLISHING AND
GLASS BEADING

Feel Free to Contact Us for Any of Your Benchrest Needs

JIM GREENAWALT
102 BRANDON RD.
YONKERS, NY 10704
(914) 776-1581

BROUGHTON RIFLE BARRELS

Harolds' Custom Gun Shop Inc.

S.S. Match Grade barrels in
22 - 6 - 25 - 7mm - 30 Cal

We Specialize in Top Accuracy
Bench Rest, Live Varmint and Hunting Rifles
as well as aluminum pillar bedding
in wood and synthetic stocks.

Harold & Bruce Broughton
Benchrest Gunsmiths

Rt. 1 Box 447
Big Spring, Tex 79720
915-394-4430

PRODUCT DEVELOPMENT

Continued

years went by before I realized others might benefit from the "gadget." Some items were made at the request of fellow shooters.

Not much of a story here. The real economic risk has been taken on by a large number of others in this game. They are the ones I take my hat off to. The ones I know personally, seem to have a much higher desire to build something better than to achieve wealth.

Thanks for asking,
Alvin

DAVE BRENNAN

Dear John,

In the early days of the sport . . . indeed right up to the 1975 era, if an individual was really serious about winning benchrest matches, he (or she) had to approach that laudable objective from three separate and distinct viewpoints:

1. Shooting well in the match itself.
2. Use great care in the selection of reloading components, i.e., cases, bullets, primers, etc., and skillfully reloading.
3. Constantly look for a new "angle," one that would put you ahead of fellow competitors.

BEFORE YOU LOCK UP YOUR GUNS... LOCK OUT RUST

new

RUST PREVENT
SPRAY AND PUT AWAY
SHOOTER'S CHOICE

SHOOTER'S CHOICE new Rust Prevent aerosol is the superior anti-oxidating, moisture displacing agent. Engineered to rigorous SHOOTER'S CHOICE standards, Rust Prevent stops corrosion before it can start. For superior long and short term protection, lock out rust and lock in value with SHOOTER'S CHOICE Rust Prevent.

SHOOTER'S® CHOICE

Straight-Shootin' Gun Care!
WRITE FOR FREE LITERATURE
16770 Hilltop Park Place • Chagrin Falls, Ohio 44022
Phone: (216) 543-8808

Today, almost fifteen years later, in 1989, let's look at those three requirements in the cold light of reality . . .

1. "Shooting well, in the match itself" continues as a "given." The advent of the popularity of wind flags enabled us to see what was causing a lot of the fliers that had driven us nuts since 1947. The South Creek range has driven a lot of good shooters nuts ever since its inception (a situation that at the 1989 IBS Nationals has not changed much.) With a couple hundred wind flags out there, between the shooter and the targets, it was of morbid interest that some were going one way, some another, and heaven only knows what some others were doing. After studying them for awhile anyone with a decent brain would have gone home. It was frightening!

The successful shooter today either: 1) does quite a bit of practice shooting (tuning equipment, checking barrels, bullets, seating depths, scopes, and a whole bunch of other possibilities); 2) has tremendous powers of concentration once he sits down at the bench (and I observe with interest that the only really successful-at-the-bench writer we've had in the sport was the late Warren Page. Most writers have a mind that hops around a lot, and does not focus well on a mundane matter like giving full and undivided attention to a number of wind flags out front for seven uninterrupted minutes); and 3) a combination of #1 and #2.

The accuracy level needed to shoot winning scores in benchrest today does not allow for anything less than an awfully high level of attention, as well as desire. Once you sit down at the bench for a record match all else must be blocked from your mind.

That's my problem today, at least with respect to winning benchrest matches. In 1982-1983 this was something darn important to me. In 1989 I'm just too busy with a half dozen other important things, and winning benchrest matches is kind of low on my scale of priorities. Finding the time for a good afternoon at the practice range is almost a total impossibility!

2. The need for great care in the selection and assembly of rounds to be fired in formal matches is self evident. Other than the fact that obviously we have better bullets, and bullet jackets, available to us in 1989 . . . it is surprising to discover that we really have not changed much in this area in the past 15 years.

3. The need to come up with a new "angle" is almost comatose in 1989. Now we have a new majority, the professional match shooter. He uses the best of the known developments of our accuracy world . . . custom actions, glue-ins, graphite stocks, whatever . . . and firing nothing else but the 6PPC of course . . . and he does not experiment further . . . because, like one who is a professional gambler . . . he knows that he will come out ahead . . . in the long run . . . by "playing the percentages." When you start trying something new, you have left the safe, comfortable world of "percentages."

This is of course all fine and dandy. But, after the writer has written, say a thousand times . . . "The winner fired 27.5 grains of H-322 with 68 grain Euber bullets" . . . one grows weary. And when I find that some character, somewhere out there, has just rediscovered the .222 Remington . . . or pillar bedding . . . or changing the shoulder angle 5 degrees on some case or other . . . or is convinced that lapping one's scope rings is the most critical element in the accuracy chain . . . or loudly protesting that velocity is not important, but rather the RPM formula of velocity times twist . . . or loudly proclaiming almost ANYTHING DIFFERENT . . . then I feel that our magazine . . . and a dozen other firearms publications as well . . . will yet survive.

The late Judson Darrow (Warren Page's gunsmith, and active in the early days of benchrest), used to have a sign in his shop that read "PROTEST THE RISING TIDE OF CONFORMITY." Judson was sort of a character, but he wasn't dull. Neither are the experimenters, thank heaven!

Dave Brennan

STU HARVEY

Dear John,

Over the past ten years aggregate scores in benchrest shooting have been getting smaller, this is due in part to the many serious shooters that have improved their personal performance. They shoot on a variety of ranges around the country and spend considerable dollars on travel and equipment to achieve this. Also, more information

SHOOTER'S NEWS & PRECISION SHOOTING INDEX OF ARTICLES

"THIS INDEX IS AN INVALUABLE TOOL FOR THOSE INDIVIDUALS LOOKING TO EXPAND THEIR KNOWLEDGE OF RIFLE ACCURACY AND RELATED TOPICS."

- 1947 TO PRESENT
- 3000+ ENTRIES
- 34 GENERAL TOPICS
- INDEXED BY AUTHOR, TOPIC, ISSUE DATE, AND PAGE NUMBER.
- $22 + $1 POSTAGE

JOHN J. GAMMUTO
5685 FOREST HILL DRIVE
CLARENDON HILL, IL 60514

is available to the new shooter these days and this gets him up to speed quicker.

I believe the development of the 6PPC by Pindell & Palmisano has been a mixed blessing. Most will agree that the PPC is the most successful benchrest cartridge since the .22 Donaldson Wasp. It allows the new shooter to get competitive in a hurry. It's a GREAT cartridge, but it does have its negative points.

Because it's so good, practically everyone uses it! Look at the number of wins it has registered at the Super Shoot and the two National events! But it has just about stifled cartridge development, except for a few diehards, experimentation has all but died.

Let's look at some of the well known negatives associated with the PPC cartridge.

1. SAFETY: This to me is most important; the .220 Russian case produced by Sako is of semi-balloon headed construction; it scares me.

2. PRIMER POCKET INTEGRITY: Caused by above design contributes to leaks, blow backs, pitted bolt faces, etc.

3. AVAILABILITY: In and out of supply and now complete disappearance of the .220 Russian case.

4. EXPENSE: They have to be imported. Can't we use an American case?

5. PHYSICAL PROBLEMS: Cases can and do get very tight in the chamber, resulting in mis-directed or lost shots.

The good groups and aggregates achieved with the PPC (Sako .220 Russian cases) I believe are the result of close manufacturing tolerances. These cases have good case wall concentricity, drilled flash holes, and very good case weight stability. In my opinion, this is the reason the PPC has dominated the benchrest world for so long.

It's time for a short commercial! I've watched and felt some compassion for those who developed the .30 American case (30/30 brass). It was their goal to develop something to challenge the PPC, my prayers were with them, but I chose not to move in that direction. The accuracy potential of the 6 BR has long interested me.

I've pursued Remington 6 BR development for quite a few years now, and struggled with the well known early problems forming .308 brass. It wasn't until the 7 BR brass became available that I felt like spending much time with it. Since then I've had many successes with my version of the 6 BR.

The "SSBR" or Stu's Short BR is very simply the Remington 6 BR shortened in body length by .100″; using my throat and neck diameter of .265 with no other change. The case o.a.l. is 1.420″. You can forget the BS about small vs. large flash holes; it makes no difference at all. Actually, I believe a flash hole diameter of .080″ is optimum.

While not claiming this to be an original development, many others may have done the same; it illustrates my point, i.e., success can be achieved without using imported PPC cases. I think we can achieve similar results using domestic, SAFER, and cheaper cases if we put our mind to it. The most important accuracy related factor is using similar case capacity to that of the PPC. The advantages are safer head construction, less expensive, and they're easily obtained. If you loosen the primer pockets up it's because you're using the wrong powder.

To quote Ferris Pindell, "Accuracy is the sum of tremendous trifles." I believe a couple of other developments also apply to this truism.

Creighton Audette's proven theories regarding case wall concentricity lead the way for Verne Juenke's development of the I.C.C. case wall and bullet comparator. .220 Sako Russian cases are known to be very uniform, but many brands are not. This tool is especially helpful in case selection of American production run cases.

The PPC USA cases tested on the I.C.C. are not up to the original .220 Russian case quality. The Remington BR brass also needs to be carefully selected to achieve best results.

Several years ago, Manley Oakley designed and built a machine that checked and evaluated rifle barrel twist uniformity. It is my feeling that a twist deviation affects barrel vibration. Twist deviations are not good unless it's a controlled gain twist applied toward the muzzle end. I know Dan Lilja subscribes to this and sells barrels in this design configuration.

Continued on next page

American Single Shot Rifle Association

ASSRA

An organization dedicated to the shooting and collection of single shot rifles from the turn of the century Scheutzen and Creedmoor traditions.

Traditional offhand, benchrest & long range matches are held every summer in the U.S. and Canada, using plainbase lead bullets.

For information & sample copy of the bi-monthly publication, THE ASSRA NEWS, write to: Larry B. Thompson, 987 Jefferson Avenue, Salem, Ohio 44460.

Krieger Barrels Congratulates

Eric Luhmann

1000 YARDS

We are proud that Eric chose our barrel installed by Tim Enders on a rifle built by his father, Tom Luhmann to win the coveted 1000/Yd. Service Rifle Farr Trophy in the 1989 National Matches at Camp Perry.

For information write:

KRIEGER BARRELS, INC.
N114 W18697 Clinton Drive
Germantown, WI 53022

PRODUCT DEVELOPMENT

Continued

I built a similar machine a few years ago using Manley's principle, but used an electronic measuring device instead of a physical contact readout. It's interesting to check barrels that have been "hot" shooting match winners; without fail they have a uniform twist and a slight gain, NO stops, starts, or other deviations.

It's beneficial to select or check a barrel before fitting! I won't use a barrel that does not meet my personal standard.

Well, that's all for now. Hope this has been of some help to you. Keep shooting those .17's.

Best regards,
Stu Harvey

LOU PALMISANO

Building a better mouse trap is often akin to opening Pandora's box. It doesn't take long for you to realize that the only people beating a path to your door are bill collectors.

One needs to remember that four major "gun companies" have gone Chapter 11 (bankrupt) in the last 10 years. Throughout American history, the names of fine gunmakers like Newton, Neidner, Pope, and Zischang ring nostalgically. Like many great artists, none of them knew fame or fortune in their lifetime.

The gun business is plagued with dichotomous dreamers and I doubt that all the "individual pride" and "competitive zeal" that you speak of would be enough to counter the forces of big business and the bean boys of the US arms industry.

A case in point is the continuous refusal of ANY American cartridge company to produce the PPC or .220 Russian case at any price, or in any quantity with no request for royalties or profit on my part. I have, at your disposal, all communications of said requests and refusals . . . the latest being January 1989 from Federal Cartridge Co.

In response to your query regarding whether or not I will be bringing in .220 Russian cases from overseas? The answer is NO!

Find me some stout hearted men — (as the song goes) who are willing to put up the money i.e., 90 men x $1000 each = $90,000, and I'm sure that Lapua would produce 300,000 .220 Russian cases for them. I will supply the contacts, names, and addresses, but I am out of the "gun business," and wish no more unappreciated grief from the "business of shooting." I have promised myself to shoot only for pleasure. Without the haunting phrases like, "Gee Doc, this lot of brass is soft," or "Doc, how come this lot of brass stretches?"

I imported 5 different lots of brass and each lot was afflicted with varying defects and illnesses, at least according to my critics. (Smallpox was not one of the ills.)

Now that the last lot of Sako's .220 Russian is a thing of the past, never to be seen again, (as much as I have tried to get them exclusively for the benchrest community) I hear only praise of the "old" .220 Russian case. It reminds me of professional mourners exalting the dead!

Contemporary .22 and 6 PPC USA case critics say . . . 1.) "They stretch." 2.) "They're too expensive." 3.) "They have less than acceptable case capacity."

To clear the record, I'd like to answer each of these criticisms. 1.) Soft? Perhaps, but try work hardening them by progressive fireforming. 2.) Expensive? Yes, at $.85 apiece I would report this to the Better Business Bureau or the Fair Trade Commission, but that would be futile. Instead I have relinquished all profits or royalties from Sako on brass or ammo, in return Sako has agreed to lower prices at least 40%. We'll see! 3.) Less capacity? Yes, a new cartridge has to meet certain specifications and the result was a thicker head and body if Sako was to obtain case failure insurance coverage.

No John, a man doesn't tinker with guns for "individual pride" or "competitive zeal" it is passion. Similar to love it is incurable, irrational, and once afflicted it is forever!

Now, not in the form of lament or complaint, I would like to ask why the GILKERSON LUG INSERT has not been examined by some of our prestigious reporters of Precision Shooting and made known to fellow shooters? It was reviewed by both the NRA Tech Staff and Tech Staff of Rifle magazines. The device was reported to improve accuracy as much as 17-20%. I thought we were interested in accuracy? Orlin broke a record using one almost a year ago.

To my fellow shooters I'd like to say, I haven't got any .220 Russian either! Come by my loading bench and see for yourself. I'm shooting and losing with 6 PPC USA brass just like you. If you are the Doubting Thomas type and would like to shoot the cartridges out of my loading block . . . be my guest. I do not have a special run or different lot of cases.

To those who do not like to put their money where their mouth is (90 stout hearted men) do what others plan to do, wait for Remington to produce the 7.62X39 brass they have been talking about, buy four Wilson buttons, and neck 'em down and blow 'em out. Better yet, develop a new benchrest cartridge. I promise to supply that courageous individual with a free and continuous supply of tranquilizers, sleeping pills, and a strong shoulder to cry on.

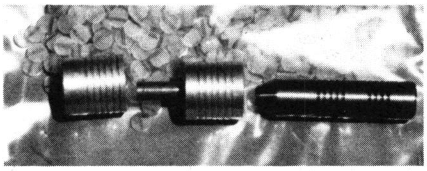
Admiring your enthusiasm and commitment, I remain your friend.

Lou

A FINAL WORD

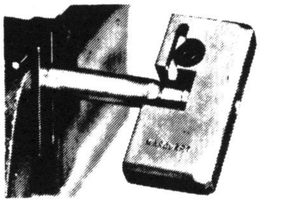
As a post script to Dr. Palmisano's words I'd like to call your attention to his ad for PPC USA brass ($45 per 100) in the December issue. He wrote the above piece for me in September . . . 3 months later he's taking orders for reduced rate brass. Lou correctly used the word passion to describe his relationship with the game of accuracy shooting. Don't ever confuse this man's intolerant attitude toward ignorance and bad manners to be anything less than that. I'm proud that he considers me a friend. You can bet I'm going to find out about Orin Gilkerson's locking lug device too!

John J. Gammuto



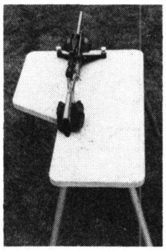
P-CHEC DIE!: Merrill Martin's Cast Bullet (CB) accuracy gadget is now available to you. Die set cuts disks from LDPE plastic (2500/hr). Also square-seats disk into loaded case's mouth, prior to seating CB. Handmade to your specs. Provide: necklength, max neck O.D. (expanded), & CB diameter. They seal all gas leakage around CB, permitting high velocity and accuracy for both plain and check-based CBs. Cost is $51, including die set, cutter-base, and good instructions.

HANNED PRECISION, POB 2888-PS
Sacramento, CA 95812
"Only a benchrester has the skill to set world class CB records." - Ed Wosika



Turn case necks uniform within .0001

with this Marquart Neck Turning Tool — pilot diameters from .17 to .30 caliber. We specialize in rebarreling and conversions — and CUT-RIFLED barrels, 7mm to .45 caliber. **Marquart Precision Co.; Box 1740; Prescott, AZ 86302; (602) 445-5646**



ARMOR SHOOTING BENCH

THE FINEST PORTABLE BENCHREST AVAILABLE.

Heavy steel legs & rugged angled brackets. Large 1½" thick heavy top. 29"W x 44"L x 33" High. Easy setup. 3 Leg Model 55 lbs. $119.95. 4 Leg Model 65 lbs. $139.95. 3-4 Leg Combo Model 69 lbs. $149.95. Plus UPS. **ARMOR METAL PRODUCTS, P.O. BOX 4609, HELENA, MT 59604. (406) 442-5560.**

LETTER TO THE EDITOR

Dear Dave,

I have been reading the many suggestions in Precision Shooting the past several months on what we, as shooters, can do to attract more people to shooting. By this, I do not necessarily mean benchrest shooting, rather, get them plinking, hunting, etc. and then nurture them into a more organized shooting sport.

I have been subscribing to P.S. since 1982 and have witnessed the evolution of the Brennan-era into the great magazine it has become in the 1980's. My father started me shooting an old Remington .22 single shot rifle from sandbags when I was four years old. A Marlin tube-fed .22 followed when I was twelve.

After a few years of "sneak shooting" groundhogs on the family farm with the Marlin; I couldn't resist the temptation to sneak Dad's Remington 700 .243 WIN complete with a K-4 Weaver (he had purchased the outfit in 1964) from the house while the family was away. That afternoon was the beginning of a passion, now in its twentieth year.

In 1980 our rural mail carrier introduced me to NRA three position shooting. Sure wish he had been around fifteen years earlier when I had started shooting groundhogs. He loaned me a Winchester 52 heavy barrel complete with a Lyman 15X Super Target Spot to get me started. I then began shooting in the Pittsburgh, PA Surburban Rifle League (a four position indoor Winter League that has its origins in schuetzen shooting). Then an Anschutz 1413 free rifle followed; from there two trips to Camp Perry for the three position National Matches.

In 1983 I was introduced to my current disease, small bore rifle silhouette shooting. I progressed through the classes until I achieved a Master classification in 1987. I then began shooting smallbore sporter rifle silhouette and earned Master class in 1988. During this time I also was awarded NRA Grand Slam Pius for each rifle. In 1989 began shooting high power rifle silhouette to get more "bang" for my buck.

This is where my years of reading P.S. started to reap rewards. My loading and cleaning tools/techniques are superior to most of my competitors. Wilson dies, Redding BR measure, Marquart neck turner, Whitetail P.P. uniformer, and most of Fred Sinclair's gadgets are in my possession.

Now, to the original intent of the letter: Several members of the Carmichaels, PA Sportsmens Club, including myself, have for the past two hears hosted a Sporting Deer Rifle Shoot in November. We limit rifles to .243 or larger caliber, sporter weight barrels, scope magnification to 9X, and shoot four hunting style positions.

In 1988 we had forty-eight entries. In 1989 we had to limit entries to sixty-four and turned away twelve shooters. Our club hosts rifle and pistol silhouette matches during the Summer months; so we know how to produce a smooth running match. We explained to the competitors (many first timers) the meaning of relays, range commands, target scoring procedures, and **stressed** safety (all actions open until the Ready command was given).

We went overboard on politeness since we wanted everyone to feel comfortable and that everyone was a winner for the simple fact they were competing and becoming more familiar with their rifles. We ran the relays quickly but weren't pushy when tardiness to the firing line occurred.

After the match was completed and trophies awarded, we had a drawing for door prizes which had been donated by the firearms industry and by local merchants. We had scoured the local area the week prior to the match and had obtained enough items so that every competitor received a door prize. These items ranged from Sierra caps and belt buckles, Weatherby belt buckles, and Omark-CCI caps, to a car battery, free pizzas, and even an 8′ X 10′ carpet remnant.

We achieved what we had aspired to do:
Pro gun results and photos published in local newspapers, sixty-four happy competitors talking about next year, and even the shooters' wives coming to watch their husbands shoot!

Why were we successful with our match? We focussed on what type of competitor was available and promoted our match in that direction. Everyone in western PA has some sort of deer rifle. Everyone took something home including the archery deer target they had used in the standing position; and we tried to promote a carnival-like atmosphere with posters and banners and had groups of shooters competing within that group for "bragging-rights until next year".

Had we chosen to hold an NRA/IBS/NBRSA type match, I am sure we would have been unsuccessful. Fairchance Gun Club is only a half hour's drive from our range for those people interested in formal benchrest shooting. Our area is predominantly rural with high unemployment (6.7%) and low average annual income. People have little extra money to spend on hobbies. We utilized what was available. Our slogan was: "Bring your butt, a box of ammo, your rifle and seven bucks and enjoy yourself".

Will anyone from this group choose to advance to more formal shooting? We hope so, but we keep recruiting. Maybe someone will ask about shooing like I asked the mail carrier ten years ago.

Keep up the good work.

Best Regards,
Allan H. Crouse
RD#1 Box 5
Graysville, PA 15337
(412)428-3966

TRIGGER TUNING

All Remington centerfire bolt actions except Model 788. Set to specified weight-of-pull, one pound minimum, no creep. Send trigger assembly only. Cost $25.

NEIL JONES
CUSTOM PRODUCTS

R.D. 1, Box 483-A,
Dept. PS
SAEGERTOWN,
PENNSYLVANIA
16433
(814) 763-2769

Brochure $2.00

MasterCard VISA

Specializing in reloading tools, cleaning tools, accuracy equipment and rifle accessories to fill your needs.

IF YOU ARE IN NEED OF:

Precision Chamber Reamers
Quality Gauges
Special Gunsmith Tooling
HSS Drills, Taps, and other Cutting Tools
LARGE INVENTORY IN STOCK

Contact us for details:

JGS
Precision Tool Mfg.
1-503-267-4331
FAX: 1-503-267-5996

1141 S. Sumner Rd.
Coos Bay, OR 97420

VISA MasterCard

IRON SIGHTS

Dear Dave

I reference Ken Scheel's letter on front sights in the January issue, page #32.

I wonder if Ken has ever had any exposure to the old Dockendorf front sight. I've got one on my XP-100 pistol in 7BR chambering, and one on a custom barreled Deulov Model 75 pistol in .22 long rifle caliber.

What makes them rather unique is that they are tunnel sights with a dot suspended on a cross wire. That's not unique in itself, but the fact that there is a sliding cover over the top is. If you wish, at the moment, a black dot, you slide the cover over the notch in the tube. The dots (on mine, anyway) were gold, but I've redone them, with a dab of typist's "white out". When you want a white dot, you just slide the cover back, and presto, the sunlight hits the white dot.

Almost forgot, Dockendorf #3 in my collection is on a Remington 12C. It has square cross bars, "hairs" is stretching the size description a bit. Along with an old Lyman tang sight, the combo (complete with less than optimum bore condition) is surprisingly accurate, even with my now trifocal equipped eyes.

I remember Numrich Arms (now Gun Parts Ltd., West Hurley, N.Y 12491) selling them years back. With all the silhouette and black powder shooting going on, maybe it's time for their comeback. Does anyone know of Mr. Dockendorf, or the whereabouts of his tooling?

Phil Mahoney
67 White Hollow Road
Lime Rock, Conn. 06039

CLARENCE HAMMONDS

Complete rifle services
in our shop.

We currently build 1,000 yard rifles; hunter and varmint hunter rifles, varmint classes rifles, and live varmint rifles.

Loading dies made with same reamer as rifle on new gun or new barrel orders.

HAMMONDS GUN SHOP
R.D. #4, Box 504, Red Lion, Pa. 17356
Phone (717) 244-7879

ALLEN BENCH

I read, and enjoyed, the article in the November issue by Dick Johnson on charting Culver powder measure settings. Like most procedures, if you understand how to do it, it is simple . . . but to me it is most intimidating. We country boys are hopelessly out of our depth!

Thinking that perhaps I am not alone, especially out here in the West, where things are more primitive than in the East (Editor: is that damn Geronimo off the reservation again?) . . . I have reached the conclusion that maybe I should pass along the system that has worked for me for the last 15 or 20 years. It works with micrometer converted measures; be they Saeco, RCBS, and Culver measures.

The one item necessary will be some 10-10 graph paper. It should be readily available in any office supply store. Now . . .

1. Pick out the low and high range number that you are interested in. For purpose of this discussion, let's say from 40 to 52 on the Culver measure.

2. Set up at 40, the low on the selected range. Throw a few charges, and we are ready to start.

3. Throw five charges in the scale pan, balance the pan, and we find that we have 109 grains. When one went to school in the good old days, one had to memorize the multiplication tables. Thus, with the advantage of old wisdom, I calculate . . . that 109 times 2 = 218, and by moving the decimal over one place . . . I have effectively divided by 10, and our average is 21.8 grains. (Editor: should be child's play for anyone who grew up on the wrong side of the railroad tracks, and who had to learn how to figure the odds in a fast crap game at an early age).

4. Lay down a piece of the 10-10 graph paper. By the way, we call this a "Far West" spread sheet. (Editor: but can the IBS members still use it? How about the Eastern Region of the NBRSA?). Pick a vertical line on the left side, and call it 22. Then a horizontal line, and call it 40. We now make a dot two lines to the left of the 22-40 intersection, to record the 21.8 that we got at 40 on the Culver.

5. Crank the measure up to 52 (the high range that we selected earlier), and repeat. This time five charges weigh 142.3 grains. Okay, double that, and we now have 284.6 grains. Move the decimal over one place, and our average is 28.46 grains. Let's make that 28.5 grains; it's easier both to remember, and work with. We must now count down our graph paper, from 22 to 30, then place a dot at the intersection of 52 horizontal and 28.5 vertical.

6. Now all we need to do is to draw a straight line through our two dots . . . and we will know what the Culver will throw at any setting in our range.

If you want to you can use different colored ink pens, and draw lines for several different powders on the same sheet. This would make it into a real high tech sheet. After trying this a time or two, it should take just about three minutes to run one of these "Far West" spread sheets for any type or lot of powder that you may be using.

As this is just an example of how to do this, I am using the data from Mr. Johnson's article to arrive at what his powder measure and lot of powder would do at settings of 40 and 52. You can compare my graph with Mr. Johnson's chart, and see that they are almost the same; well within the accuracy of the measure.

Allen Bench
3312 W. Metaline
Kennewick, Wa. 99336

P.S. For graph paper I have been using recording graph paper from a surplus store. It is so thin that I've backed it up with a photo of one of the little hills west of here. (Editor: to pass along the droll Bench humor, we will reproduce the photo of the "little hill" immediately following the article).

PRECISION SHOOTING SUBSCRIPTION

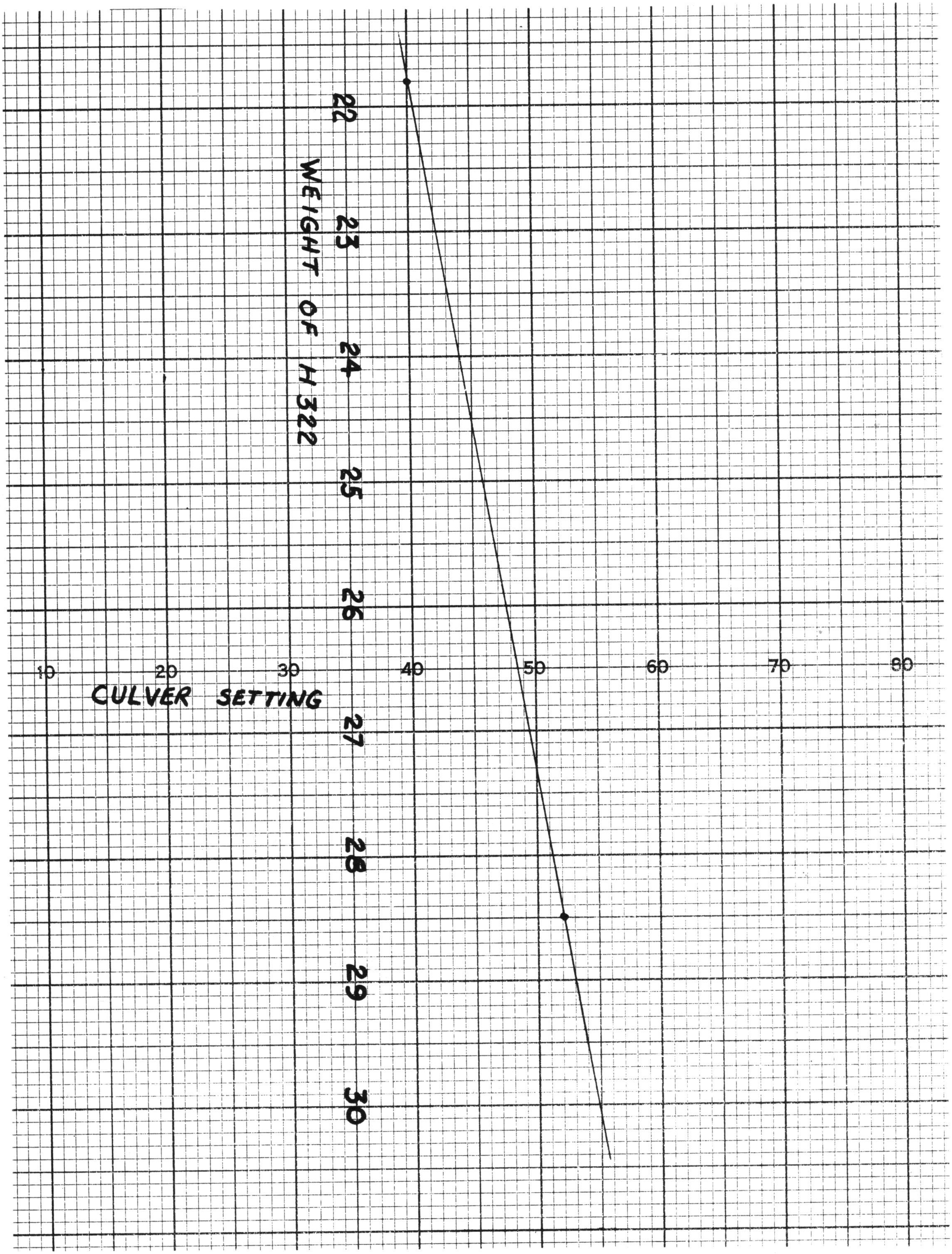
( ) Precision Shooting, one year — $20.00. Canada $22.00
( ) Precision Shooting, two years — $36.00. Canada $40.00
( ) Precision Shooting outside U.S. — $26.00 each year, or $44.00 air-mail

SUBSCRIPTION CHECKS NOT DRAWN ON AN AMERICAN BANK WILL BE RETURNED

( ) New ( ) Renewal

MAIL PRECISION SHOOTING MAGAZINE SUBSCRIPTION TO:
PRECISION SHOOTING, 5735 Sherwood Forest Drive, Akron, Ohio 44319
Make checks payable to Precision Shooting.

NAME____________________
ADDRESS____________________
CITY__________ STATE__________ ZIP__________


WEIGHT OF H 322
22
23
24
25
26
27
28
29
30
10
20
30
40
50
60
70
80
CULVER SETTING

The "little hill just west of here", from Allen Bench.

BALLISTICS PROGRAMS FOR SHOOTERS
PART 2

Bud Salyer

Ballistic Data Program, Proware, Inc., 1023 SE 36th Avenue, Portland, Or, 97214, ph. 503-233-4465, price $49.95.

With several ballistics programs on the market, a shooter needs to look hard at several factors in selecting one for home use. Of primary importance is accuracy: does the program provide information that is scientifically reliable? Another factor is versatility: will the program do everything the user thinks is essential? A third consideration is "user friendliness": how difficult is the program to learn to use? Finally, how much does it cost?

If you have been intimidated by the price of Sierra's computer ballistics program, you would not go wrong by selecting this offering. You will save about $150.00 right off the top, and assuming this program will do what you want, that would be a major influence in buying it. In addition, Proware's program answers several questions that are not addressed by Sierra's.

The answers given by the two programs do not precisely coincide, but the differences in most instances are so small as to be of no practical consequence. Besides, I don't profess to be such a ballistician as to be able to decide which is more accurate.

Sierra's program is essentially restricted to printing a trajectory table similar to the ones found in their loading manual. By using those tables, you can arrive at some of the answers provided in Proware's program, but you must have some talent for reading the table. I have been doing it for years, but still have difficulty occasionally. Proware's program gives you many answers directly, and that is a real asset. There is no need to interpolate.

When the program is loaded, the screen shows the menu in Figure A. As with the Sierra program, you begin by entering data for the load you are studying. Figure A has been filled in with most of the information for the 7mm-.300 Weatherby (7mm STW). After the data is supplied, you go to a menu (Figure B) which permits you select questions you want answered or to produce ballistics tables. The program has the following capabilities:

1. Ballistics tables for any range, for both a base and alternate altitude. You can also factor in angles for shooting up and down hill.
2. Maximum point blank range (MPBR).
3. Sight changes for a new zero.
4. Calculating the ballistics coefficient of a bullet from chronograph readings.
5. Calculating standard deviation by providing velocities, group sizes, etc.
6. Calculating recoil.
7. Calculating your zero range from the elevation of your hits at any given range.
8. Predicting group size at any range, based on the group size at any other range.
9. Saving data that has already been entered for a particular cartridge.

These capabilities are pretty extensive, but they do come with some reservations, some of which are real, and others which are more theoretical than practical. Here are some of the things I have noticed, by comparison with Sierra's program:

A. Sierra allows you to enter the multiple ballistics coefficients published for many of their bullets. Neither Proware, nor any other program, permits this. Whether it is of any significance is left to the reader. Consider: Sierra's table for a .284 168-gr. BTHP fired at 3,250 fps with a 1,000-yard zero shows a terminal velocity of 1,855 fps, a maximum elevation of 70.70 inches above the line of sight, a drift of 52.70 inches in a 10 mph wind, and a drop of 239.46 inches.

If you run Proware's program and use Sierra's BC of .636, you get a terminal velocity of 1,874 fps, a maximum elevation of 70.25 inches, a drift of 51.69 inches and a drop of 240.09 inches.

On the other hand, if you run the Proware program and enter Sierra's BC of .604, you have a terminal velocity of 1,814 fps, a maximum elevation of 72.73 inches, a drift of 55.38 inches, and a drop of 246.06 inches.

Continued on page 33

MATCH
GRADE
BULLETS

Fowler bullets have been competition proven in every major American benchrest event: the Cactus Classic; the Crawfish Invitational; the Super Shoot; the Championships of both I.B.S. and N.B.R.S.A.; plus regional, state and local tournaments.

These bullets are made by and for shooters who will accept only the best. They are hand swaged in Rorschach carbide dies from selected jackets, and subjected to rigorous quality controls to assure that dimensional and weight standards are met.

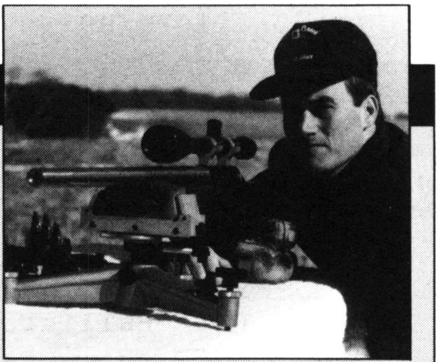
6mm: 63-66-68 and 70 grain flat base
Box of 100 — $10.95
Bulk pack of 1000 — $107.00
22: 52 grain
Box of 100 — $9.95
Bulk pack of 1000 — $97.00

We accept

Fowlers
4144 S. New Hope Road • Gastonia, NC 28054
Phone (704) 824-0026

Match-Grade Performance

IBS BENCHREST RECORD



.319″ @ 300 yds.

Union County, PA.

Jack Sutton, La Fayette, New York, shot an unprecedented .319″ group on June 18, 1988 to capture the current IBS 300 yard light varmint record.

Records are not broken by accident. Precision accuracy of this magnitude is accomplished only by those dedicated to perfection, where no detail is too small in the quest for accuracy.

Jack Sutton of Hart Rifle Barrels, believes in that philosophy both in his barrel making and in the products he uses.

He didn't choose his Redding powder measure by accident either. The Redding #3BR Match Grade Powder Measure allows demanding shooters like Jack Sutton to achieve unparalleled precision and repeatability right out of the box with no modification whatsoever.

SAECO
REDDING
RELOADING EQUIPMENT
1089 Starr Rd., Cortland, NY 13045

```
                             Data Menu
CN  Cart. Name--    SI .284 168 BTHP  FN  FileName--
BC  Bal. Coef.--0.636                 BI  Bul. Id.--SI .284 168
MV  Muz. Vel.--3250 F/Sec             PR  PRimer--      CCI200
BW  Bul. Wgt--  168.0 Grs.            CC  Case Cap. Water   0.0 Grs.
SH  Sight Hgt-  1.50 Inches           CL  Case Length 0.000 Inches
AN  ANgle +/- from horizon--  0       OA  OverAll cart. length 0.000 Inches
WS  WindSpeed 10 Mph                  CA  CAse--
BA  Base Altitude      0 Feet         GR  GRoup size 0.75 Inches @ 100 Yards
BT  Base Temp.  59.0 F.               IV  Instrumental Velocity |N|
AA  Alternate Altitude  8000 Feet     RE  REcoil data display |Y|
AT  Alternate Temp.  59.0 F.          LO  LOad data display |Y|
ZR  Zero Range-- 100 Yards            OP  English
RI  Range Inc.-- 100 Yards            SY  SYstem setup
ER  Ending Range-- 1000 Yards         DI  DIrectory
IA  Inches Above LOS for MPBR-- 2.00  SA  SAve data to disk
IB  Inches Below LOS for MPBR-- 2.00  SE  SEnd Data Menu data to printer/disk
GW  Gun Wgt--15.00 Lbs.               GE  GEt disk data
PW  Powder Wgt-- 87.00 Grs.           NO  NOtepad Not Adding to Tables
DA  DAte--  10/8/89                   EX  EXit to DOS
PI  Powder Id.--       IMR 4895       MM  Main Menu
```

```
                             Data Menu
CN  Cart. Name--    SI .284 168 BTHP  FN  FileName--
BC  Bal. Coef.--0.636                 BI  Bul. Id.--SI .284 168
MV  Muz. Vel.--3250 F/Sec             PR  PRimer--      CCI200
BW  Bul. Wgt--  168.0 Grs.            CC  Case Cap. Water   0.0 Grs.
SH  Sight Hgt-  1.50 Inches           CL  Case Length 0.000 Inches
AN  ANgle +/- from horizon--  0       OA  OverAll cart. length 0.000 Inches
WS  WindSpeed 10 Mph                  CA  CAse--
BA  Base Altitude      0 Feet         GR  GRoup size 0.75 Inches @ 100 Yards
BT  Base Temp.  59.0 F.               IV  Instrumental Velocity |N|
AA  Alternate Altitude  8000 Feet     RE  REcoil data display |Y|
AT  Alternate Temp.  59.0 F.          LO  LOad data display |Y|
ZR  Zero Range-- 100 Yards            OP  English
RI  Range Inc.-- 100 Yards            SY  SYstem setup
ER  Ending Range-- 1000 Yards         DI  DIrectory
IA  Inches Above LOS for MPBR-- 2.00  SA  SAve data to disk
IB  Inches Below LOS for MPBR-- 2.00  SE  SEnd Data Menu data to printer/disk
GW  Gun Wgt--15.00 Lbs.               GE  GEt disk data
PW  Powder Wgt-- 87.00 Grs.           NO  NOtepad Not Adding to Tables
DA  DAte--  10/8/89                   EX  EXit to DOS
PI  Powder Id.--       IMR 4895       MM  Main Menu
```

Figure A

```
ALT-F10  New Cartridge Data Entry
    F10  Ballistic Table w/Zero at Base Alt/Temp
    F9   Ballistic Table w/Zero at Alt. Alt/Temp
    F8   Ballistic Table at Base Alt/Temp w/Zero For Alt. Alt/Temp
    F7   Maximum Point Blank Range
    F6   Reset Sights to new Zero Range
    F5   Calculate Ballistic Coefficient
    F4   Standard Deviation Calculation
    F3   Calculate Recoil
    F2   Where Is My Zero Range?
    F1   QUIT Main Menu
 Choice?
```

Figure B

BALLISTICS PROGRAMS FOR SHOOTERS

Continued

Obviously, you will get different answers depending on which BC is selected. As a practical matter, the differences are definitely not significant, regardless of which is more "accurate". To quibble over an inch at 1,000 yards is a bit too "geeky" for me.

B. If your rifle is zeroed, and you want to adjust your sights for a **longer** range, you get a message like the one in Figure C. Well and good. But if you want to adjust your sights for a closer zero, you get a message like the one in Figure D. Frankly, if I were wanting to adjust back from 1000 yards to 100 yards, I would be lost.

```
For--                 .308 WIN,
to be zeroed at 300 Yards
move impact point   5.56 Inches at 100 Yards .
Sight adjustment in minutes of angle (MOA) at
100 Yards  is   5.31.
```

Figure C

```
For--      SI .284 168 BTHP,
to be zeroed at 100 Yards
move impact point -215.48 Inches at 1000 Yards .
Sight adjustment in minutes of angle (MOA) at
1000 Yards  is -205.77.
```

Figure D

C. Maximum point blank range will, as a result of the different treatment of BC's, differ from Sierra's projections. For a four-inch vital zone, Sierra puts the MPBR for the above bullet at 290 yards, with a zero range of 250 yards. If using the .636 BC, Proware puts the MPBR at 280 yards, with a zero range of 239 yards. Since one's ability to estimate distances closer than fifty yards in the field is doubtful, I suspect the differences are rather academic.

D. Sierra permits you to not only select a wind speed, but the direction, for a more precise calculation of drift. Whether even the best shooters can distinguish between 3 o'clock and 4 o'clock is debatable.

To recapitulate, if you compare the results of these two programs, you are going to get different answers. But unless (A) fractions of an inch at 1,000 yards are important to you and (B) you have the mathematical ability to determine which of the two is more accurate, then the output should not be on any concern to you. None of the things above would make me hesitate to purchase the program.

There are some very positive things to be said for this program.

First, If you have a chronograph that does not calculate standard deviation, and you don't have a scientific calculator, you can feed this program a series of numbers and it will make the computation for you. It will do this for any series of numbers you wish to ponder: velocities, group sizes, case weight or capacity, body weights, temperatures, length of marriages, beers consumed, whatever. After digesting the data you give it, it instantly produces the standard deviation, the average and the mean.

Second, if you want to calculate recoil of a rifle and load, it will do so and permit you to by-pass all of the other data entry and go directly to the calculation. It provides three different methods of measurement: pounds per second, feet per second, and foot-pounds of energy. I am not sure that this distinction is necessary, but it would be helpful in predicting how a proposed magnum rifle will kick you compared to the "naught-six" you have on the shelf. You pays your money and takes your choice.

Third, for shooters who like to keep records of such things, this program allows you to print out, along with the trajectory table, a wide variety of information about the load you are working on: powder weight and type, primer type, case length and capacity, overall length, case type and numerous other details that you may wish to preserve.

Better yet, once you have fed information into the program for a particular cartridge, you can save the information for future use. For example, if you have stored information about a particular load, say a .308 Winchester, you can call it back up, make a couple of changes, such as velocity, and produce new tables without the tedious task of making all new entries.

I have not found this program as "user friendly" as Sierra's. Granted, Sierra's has more limited capabilities, but you can — literally — load it and run it without ever looking at the manual. Here, you can get it up and running in a short time, but I suspect you can anticipate two to three hours of work before you can make it do **everything** it is capable of.

I am not a computer "hacker", so many things about computers still cause me trouble. Yet, I am about as capable as the average user. Things went well until I started trying to save and retrieve data, and then I used up a couple of hours figuring out how to put it away and get it back. Specifically, I got balled up trying to save my data to a separate disk, and succeeded, only to discover I couldn't get it back. In the end, I ended up saving it to my program disk, which is acceptable as long as you don't exceed the capacity of the disk. Then, you will have to delete some old data in order to save some new. Unlike word processing programs and other such ilk, you do not have unlimited storage capacity.

I have some firm opinions about instructions for computer programs. Most seem to be written by the person who programmed them, who assumes too much knowledge on the part of the **average** user. As a result, many poor consumers, myself included, get terribly frustrated trying to get it up and running.

Continued on next page

AIR GAGE BARRELS

FOR CLOSEST TOLERANCE — In "Chrome-Moly" and Stainless Steel. All calibers up to 458 Winchester. Blanks or Finished Turned in standard or target tolerance chambers.

Ask for free data on all our services.
DISCOUNTS TO GUNSMITHS.

Write to

DOUGLAS BARRELS, INC.
5504 Big Tyler Road
Charleston, West Virginia 25312

MAGAZINE BINDERS

- Organize and protect your valuable magazines.
- Hold 12 issues any standard 8½ x 11 magazine.
- Vinyl covers with label holder on spine.

Prices **each** including UPS:
1-2: $9.50, 3-5: $7.50, 6 or more: $7.00
Prompt shipment, C.O.D.'s extra. Order from:
Bob Shaffer
P.O. Box 463026
Mt. Clemens, MI 48046
313-463-3034

RAIHA
HAND PRIMING TOOL
uses RCBS type shellholders.
Adjustable for priming depth.
4.5 inches long.
Quality materials.
Write for literature:
Pend Oreille Sport Shop
3100 Highway 200 East
Sandpoint, Idaho 83864
(208) 263-2412

BALLISTICS PROGRAMS FOR SHOOTERS

Continued

As my age goes up, my tolerance for frustration goes down. I don't exaggerate when I say that computers and/or programs have reduced me to the verge of tears and that only my wife has kept me from throwing one through the window. I sometimes do things like that — an act of satisfaction that achieves no purpose other than avoiding a stroke.

If I were writing a manual for a computer program (and I would like to) I would assume the purchaser didn't even know how to turn his machine on. And this is often the case: A person comes across a program that promises to solve some great, weighty need he has, and purchases a program with a computer to go with it. It has been my experience, and that of others, that computer salesmen are like used car dealers: when you leave the lot, it's your baby.

Five years ago, I spent $7,500 for a computer for my law practice. The salesman assembled it in my office, gave me a **ten minute** lesson and disappeared. After a week of trying to get the machine to do something useful, IBM nearly had the device subjected to an unintended crashworthiness test. I finally had to hire someone to teach me the basics — as a starting point. Obviously, I purchase my computer supplies from another source, now.

I have spent damned near an equivalent amount on "after market" manuals to learn what the original manuals don't explain.

Again, if I were writing the manual, I would have a section that says, "Put this thing here, flip that switch, do thus and so." Computer instructions for the complete idiot.

Maybe I am wrong. Maybe a program publisher is entitled to assume more computer literacy than many people actually have. I don't think so. Several people who read my review of the Sierra program called and said, "I am interested, but what did you mean when you said, 'load the program.' "

The point of all this is that **if** you have a small amount of computer experience, you will be able to extract a lot of usefulness from the program without too many headaches. But if your kids own the computer and you decide to use it for ballistics work, you definitely need to get the kids to help you get started. I guarantee they know more about it than you do.

That said, I can assure you that if you have a couple of hours to devote to mastering this program, you will not be disappointed with Proware's product. It does the job and does it well.

POWDER BURNING RATE

Fast - Medium - Slow as an overview is OK but it does not answer the question of exactly how fast - slow - etc.

Comparing the powders in one line, such as Dupont's IMR series, isn't too much of a problem as IMR 4198 is faster than IMR 4350. The question is . . . how much faster or slower.

I have come up with an exact method of describing powder burning rate that I have not seen in print in any of my sources.(I'm sure someone else has come up with this as I always seem to be discovering things everyone else has known forever and forgotten it already).

$$\text{Powder Burning Rate} = \frac{\text{Bullet Velocity (FPS)}}{\text{Powder Charge in Grains}}$$

Result is velocity FPS per grain

A few rules must be observed to make use of this method.

1. The same bullet weight must be used and, for exact results, the same style etc. A good example of the use of this system can be seen by Mr. Geza Nagy's test of H322 in P/S Dec. 89.

	POWDER LOT	CHARGE WT.	VELOCITY	BURNING RATE FPS PER GRAIN
#1	# 9678	27.3	3131 FPS	114.69
#2	#71288	27.1	3095	114.21
#3	#12685	27.0	3031	112.26 Ave. 112.045
#4	#12685	27.9	3120	111.83 FPS

We now have some numbers to relate the different lots of powder to each other.

Lot #9678 is the fastest - Lot #12685 is the slowest. We can relate to what the difference is.

This method can be used to relate different brands of powder to each other.

Speer Reloading Manual #11
7mm BR Rem. 115 Gr Bullet

BURNING RATE	POWDER	CHARGE	VELOCITY	FPC/GR	AVE.
1 Fastest	RL 7	24.4 Gr 26.4	2234 FPS 2411	91.557 91.326	91.44
2	H322				80.1
3	BLC2				77.7
4	H335				77.5
5	IMR 3031				76.2
6	N-203				74.7
7	IMR 4320				74.4
8	IMR 4064				73.5
9	IMR 4895				72.9
10 Slowest	748				70.0

ROCKY MOUNTAIN RIFLE WORKS LIMITED

MATCH GRADE-CUT RIFLED BARRELS
HAND LAPPED — CHROME-MOLY AND STAINLESS STEEL
PRECISION ACCURACY IS OUR FIRST CONCERN
Contact Mark Chanlynn
ROCKY MOUNTAIN RIFLE WORKS, LTD.
1707 14th ST. BOULDER, COLO 80302 303-443-9189

Speer - 7 BR Rem.

115 Gr			130 Gr		
RATE	POWDER	FPS/GR	RATE	POWDER	FPS/GR
# 1	RL7	91.3	# 1	RL7	82.9
2	H322	80.1	2	H322	80.75
3	BLC2	77.7	3	3031	77.4
4	H335	77.5	4	H335	75.0
5	3031	76.2	5	4895	74.2
6	N203	74.7	6	N203	74.2
7	4320	74.4	7	4320	71.7
8	4064	73.5	8	748	69.5
9	4895	72.9	9	BLC2	69.1
10	748	70.0	10	4064	66.3

This chart shows several things:

1. The number used to describe the powder's burning rate changes depending on the bullet weight. RL7 - 91.3 FPS/GR - 82.9 PS/GR.
2. The change in order of burning rates. This is why a chart such as the one in the front of Speer's Manual can only be approximate.

Useful information can be had by some careful interpolation from one source to another. The numbers will not be as correct as one's own test but still useful.

The question of burning rate troubled me until I started relating to it this way.

Enclosed is a chart from my own testing which also includes a table of relative density powder burning rate f.p.s. per gr. 6PPC - 6 BR.

	POWDER	RATE		POWDER	WT.
# 1	4198	130/127 FPS	# 1	BALC Z	35.2 gr.
2	RL7	122.6	2	H335	34.7
3	T32	116.8	3	2460	34.2
4	H322	113.8	4	2230	34.1
	3031	Not Tested	5	748	34.0
5	H335	110.3	6	RL12	32.4
6	2230	106.5	7	H322	31.5
7	RL12	105.8	7	T-32	31.5
8	2460	105.7	8	IMR4895	31.1
9	IMR4895	104.85	9	RL7	30.6
	H4895	—	10	IMR4198	29.6
10	BALC2	101.8	11	3031	28.8
11	748	100.1			

I hope this will be useful to someone.

Ron Arkfeld
13550 San Antonio Rd.
Atascadero, CA 93422
805-461-9019

Match Advertisements

Clubs holding either an NBRSA or IBS registered match may advertise in P.S. at rates substantially reduced from our commercial schedule.

The fee schedule for clubs for 1990 will be:

Full page	$110.00
Half page	$ 55.00
Quarter page	$ 30.00
One sixth page	$ 20.00

There's no big procedure to follow. Write out what you want your ad to say, what size you want it, and when you want it run, and we will take it from there. Send to the Editor.

Give yourself adequate lead time. For instance, if you want an ad in the July issue, the ad copy must be in our hands by the end of May.

The Editor

MATCH GRADE 6MM BULLETS

by
Brian Rubright

- Made in carbide dies.
- Your choice of boat-tail or flat base styles.
- Choice of bullet weights; 62.5, 65.0, or 68 grains.
- **$10.50 per hundred. Shipping charges will be invoiced.**

BRIAN RUBRIGHT
1008 S. QUINCE ROAD
WALNUTPORT, PA. 18088
(215) 767-1339

SPECIALISTS in GUN CLEANING SUPPLIES for ACCURACY
100% Cotton Flannel Patches • Brass Core/Bronze Bristle
Bore Brushes • Cleaning Rods • Spear Pointed Jags • Bore Guides
• Action Tools • Cleaning Solvents • Gun Oil
Complete Line of Accessories from .17 Cal. - .45 Cal. Rifle
Pro-Shot Products, P.O. Box 396, Taylorville, IL 62568
Phone (217) 824-9133 FAX (217) 824-8861
Send or call for free catalog. Dealer inquiries invited.

Reloaders Discounts!

30% off list prices of Redding, C-H, Bonanza's top quality dies and equipment. Send $3.50 for manufacturer's catalog/price pack, refundable on $25 order. VISA/MasterCard accepted. **Vega Tool Company**, Dept. 488, 1840 Commerce St., Unit H, Boulder Colorado 80301. (303) 443-4750.

THE CONN
ECTION
(203) 242-5036
FFL# 6-06-002-01-0B-08015
Louis T. Carabillo, Jr. --- Dealer In Firearms
12 Beacon Hill Drive
Bloomfield, CT 06002

- - - - - - - - - - - - -

January 5, 1990

Mr. Boyd Mace
1300 New Hampshire (#46)
Rock Springs, Wyoming 82901

Dear Mr. Mace:

I only recently subscribed to PRECISION SHOOTING, and, just last evening, had the pleasure of visiting the Editor, David Brennan, at his East Hartford home (I find we're just a 20 minute drive apart). I talked with David about my long-time avid interest in rifle shooting (including bullpups), particularly varmint shooting, and my specific interest/goal, at this time: "a rifle-cartridge combination that will produce 4,000 fps, or better, with varmint-weight bullets, at 1/2 M.O.A., or better." I'm sure that the PS readership agrees with "the late Colonel" that "Only accurate rifles are interesting," and, after reading your recent reports on long-range varminting (David generously gave me some extra, past issues of PS [June '89 thru November '89 --- no August issues left --- as well as the current January issue, to compliment the only issue received to date: the December '89. I couldn't put them down till 2:30 this morning), I believe you'll share my feeling that "Only accurate, ultra-high velocity (4,000 fps and higher) rifles are exciting."

My interest was piqued, recently, at the mention of a "6mm competition cartridge w/ a 105-gr. VLD bullet," both in the November '89 AMERICAN RIFLEMAN, p.66, and the December '89 GUNS, p.66 (Sam Fadala mentions his "five-shot, one-half inch cluster made at 300 yards"). I'm presently awaiting response to letters sent to Walt Berger and Sam Fadala, re this bullet. I found the information you gave on this bullet, in your columns of July and November '89 very helpful (and missed your column in the current January issue). Have you had an opportunity to investigate the cause(s) of substantial reduced velocity, with both 80 and 105-gr. bullets, in the 9" twist barrel? Also, how would you compare the .240 Badger with the "standard" 6mm/284 and the 6mm Rem. and the 6mm Rem. Improved re accuracy and velocity? Is the longer (.325) neck of the .240 Badger a real benefit over the parent 6mm/284?

Having spent (and enjoyed) a lot of time experimenting with rifles and cartridges for use "against" the eastern woodchuck, the High Country marmot (in Colorado), as well as coyotes and large jackrabbits (in Arizona), I've come to appreciate the 6mm. Accordingly, I would be happy to find/develop a "6mm/4000" with 1/4 - 1/2 M.O.A. capability. *Your help/shared experience to that end would be appreciated.*

There was a mention by Wayne Ash, in the current PS (p.19), re your report in the August '89 issue (which I don't have). If that column is pertinent to this matter, I'd appreciate a photo copy of it. Thanking you, in advance, for your attention to this request, and, re your column --- I like your style.

Cordially,

Louis T. Carabillo, Jr. (formerly, Editor-Publisher, AR-10'er, BULLPUP monthlys)

BOYD MACE REPLY

Dear Mr. Carabillo:

I found your letter very interesting indeed. You raise several interesting points. First, addressing the accuracy question, I have found that many standard varmint cartridges are capable of outstanding accuracy if the gun is up to it: IE, the barrel must be of the highest quality (stainless benchrest barrel), the chambering job has to be near perfect, and the receiver up to benchrest specs. The quality of the handloads obviously need to be close to perfection, using the standard benchrest loading and case prep procedures. If all this is done very good accuracy can be expected with nearly any cartridge, with of course some working better than others.

Exceptional accuracy can be obtained at very high velocity (in spite of the contention of some writers) if the bullet quality is good. Most factory bullets are not up to it. Walt Berger is producing the best varmint bullets on the market.

The 240 Badger was designed for improved accuracy over the standard 6MM/284. It does not deliver any more velocity in its present form. The longer neck is a plus for reloading. My original goal was to get an 85 grain bullet up to 3800 fps. I realized that the standard wildcat had too much case capacity for this weight bullet which was why I shoved the shoulder back to reduce the capacity. The additional neck length was a bonus. Too much case capacity reduces the efficiency of the cartridge; velocity can actually be lost if the capacity is too large. I am not sure what the reason might be but probably has to do with the gas laws of physics. The gas laws are not 100% applicable since they deal with gasses only and ignore the fact that in this case a solid has to be turned into a gas in the cartridge, and that this process is continuing all the time the bullet is in the bore. At any rate I was not able to get an 85 grain bullet up that fast, even in a 28 inch barrel, without excessive pressure.

The 6MM is very good as is but will not get the big 105 Berger up to reasonable velocities. I have some experience with the 6MM/Improved. It has enough case capacity but does not appear to have the necessary accuracy. I don't know why, others have reported the same problem. The 6MM/284 may or may not produce exceptional accuracy in a good barrel. I have a friend building one on a benchrest action and using a benchrest stainless barrel, 28 inches in length. We will find out when he is able to test it. He is planning on using the 105 VLD (Berger).

As to my finding that the 9 inch twist barrel produced lower velocity in the 240 Badger than the 12 inch twist I don't have an explanation. I have some ideas but will wait until I can do some more testing. I suspect that will have to wait until spring as the weather in Wyoming is uniformly lousy in the winter. In fact I can think of several interesting comparisons with these two barrels: same gun, same gunsmith, same barrel maker, same barrel length, same chambering reamer, same cartridges, etc. Only real difference is twist. We will see, if I run across anything interesting I will report it in PS.

Now, your idea of a 6MM bullet trotting along at 4000 fps is interesting indeed. It is possible the 284 case might do it. I will have to experiment a bit, maybe with 75 grain bullets, perhaps with 70 grainers. It might not work with the lighter bullets at all, usually they do not offer enough resistance to build pressure with slow powders. You will probably run into pressure problems before finding the necessary velocity using faster powders. There is always a tradeoff somewhere.

I think the idea has merit though. As a side note we have seen 3900 fps in the 6MM/Improved using 85 grain bullets. This was at the expense of high pressures and blown primers, obviously not something to be recommended at all. Fooling with high pressures can be dangerous, even if you think you know what you are doing. A bigger case and some super slow powders behind the heavy bullets is a possibility, maybe the 350 Mag. case. I would keep the case short if possible to avoid the necessity of using magnum primers. Remember Dr. Palmisano's theory of the small primer igniting only an inch and a half of powder reliably? It is my belief that the same thing occurs with the large primer. At some particular height of the powder column a large primer does not work reliably either, thus requiring a magnum primer. If this is true it does not have that much to do with the burning rate of the powder. This may seem to be at odds with the reloading manuals but my tests appear to bear this out. Keep in mind that this is my particular theory and has not been tested elsewhere, at least not to my knowledge.

There may be others out there who have done some experimenting along the lines of a 4000 fps 6MM so with your permission I am going to publish your letter in PS to see if it generates any comment.

Sincerely,
Boyd Mace

DRY FIRING

Dear Dave

Merrill Martin's article on "dry fire" in the December issue is undoubtably going to provoke much thought and comment.

I have been wondering about this effect for some time now. We have three custom action 10½ pound rilfes at our home. The actions are well known types, and all three guns were built by a widely respected gunsmith who is also an excellent gunsmith of many years experience. All have reliable scopes, ranging in power from 30 to 36X.

Dry firing the guns in each case will produce some crosshair movement. One of these guns has shot an .067 official screamer group during 1989, with my wife Arleen doing the steering at the time. The crosshairs on this gun move as much as the other two. It seems, as a general thing, that the crosshairs move up as the striker falls. Only occasionally is there any horizontal movement, and this seems to be somewhere in the vicinity of 1/10 of an inch at 100 yards.

I have tried various ways to stop this crosshair movement . . . different rear sandbags, different holds, and different pressures. By the time that I was through with my search for the Holy Grail, I had concluded that the Grail was likely to continue among the missing for a while yet.

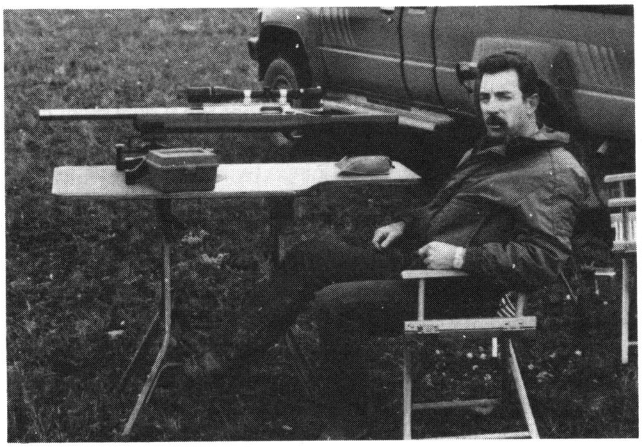
But I kept going back to the rather disturbing belief that Merrill had expounded . . . that "you can not expect a group smaller than the distance that the crosshairs travel" out of any given rifle. As I said I found the sentence disturbing.

I called my trusted gunsmith, Ed Cabor, of Port Byron, Illinois to discuss this disturbing sentence. After telling him about my concerns here, he suggested that I try chambering an empty case that included a spent primer . . . and let the firing pin fall on that. Wonder of wonders, I found that this dampens things to the point of almost no movement at all.

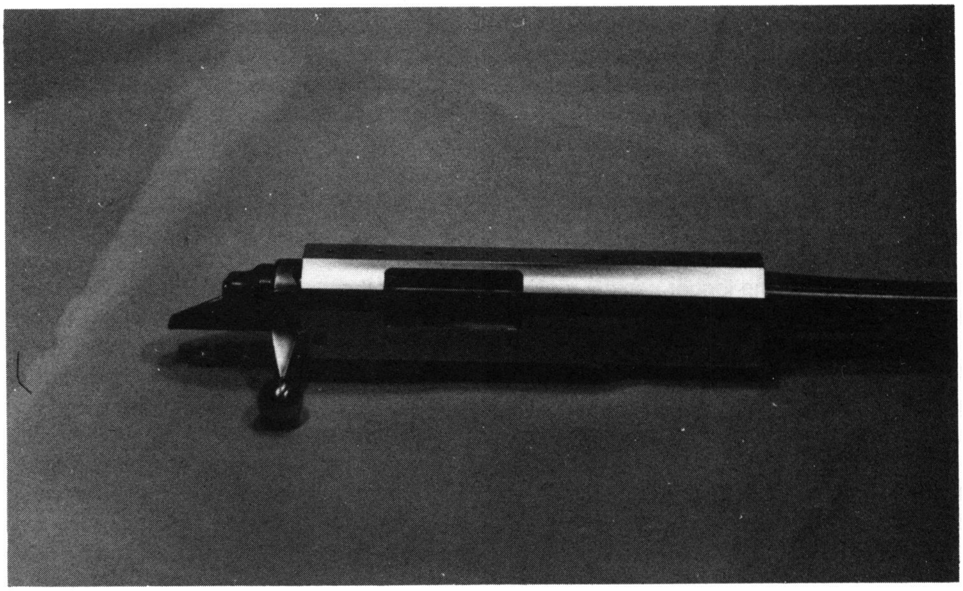
I would like to hear the opinions of some of the readership who are more experienced than I am on this particular topic. Wherein lies the truth?

Bruce Anderson
P.O. Box 300
Klemme, Ia. 50449
(515) 587-2589

WANTED
40-X ACTIONS, STOCKS, and RIFLES.
Bob Pease
POB 787, New Braunfels, TX 78131.
AC 512 625-1342 afternoons



BOYD MACE



I would like to settle this controversy over badgers once and for all. Just to prove that there are others who had run ins with badgers, I would like to relate the following stories.

Mr. Ole Honadel of Minot, North Dakota has told me of a time many years ago that he shot several times with a .22 Long Rifle, and the badger charged him in a determined and distinctly angry fashion. Fortunately, his brother (Editor: Obviously Ole's brother . . . not the badger's brother) killed it at very close range with a shotgun. The major development of the day was Mr. Honadel's now being convinced that shooting badgers with a .22 Long Rifle was just plain a lousy idea, and one that should be abandoned, like right then and there.

These days Mr. Honadel hunts prairie dogs with a Remington XP-100, chambered for .17 Mach IV. He has been able to regularly dispatch dogs at 350 yards. The pistol is topped with a Weaver T10 scope, and the barrel measures 14 inches in length. He says that the .17 caliber bullet anchors them every time. One has to wonder what the muzzle blast is like?

Back to the badgers. My friend Gene Viles spent a number of years punching cows in the vicinity of Douglas, Wyoming. (Editor: Cows are gentle, bovine creatures, and we are surprised that you would have someone as a friend , one who, over a number of years, regularly "punched" such inoffensive, placid animals).

RORSCHACH
CARBIDE DIES

$1.00 for brochure

Rorschach Precision Products
Box 151613
Irving, Tx. 75015

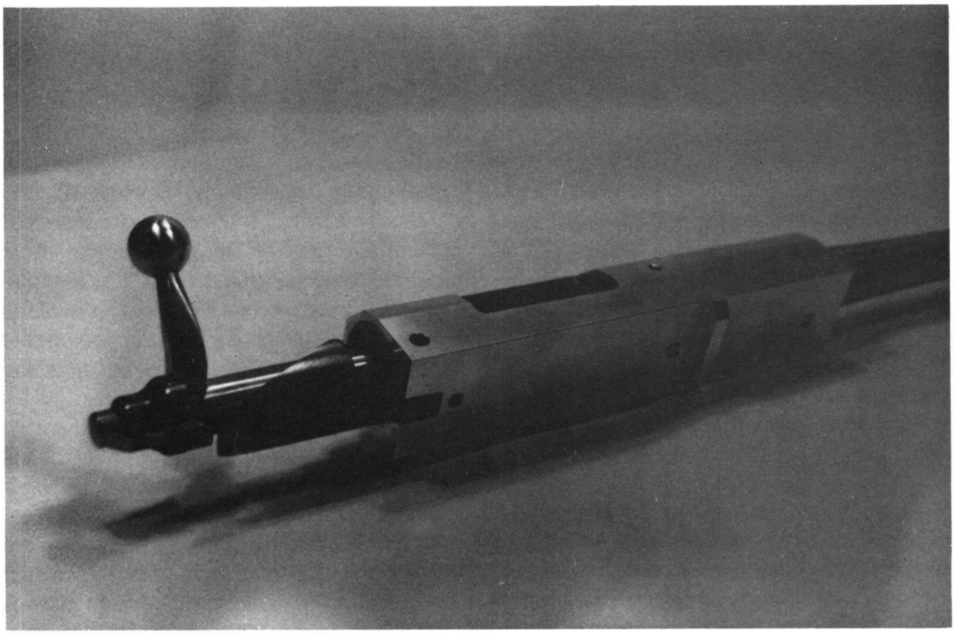
During his formative years Gene had read about the early cowboy-vaquero settlers in California, who used to rope grizzley bears on dull afternoons. Gene thought this sounded like a real fun hobby, but wisely decided that he ought to start with something smaller, and work his way up the size ladder.

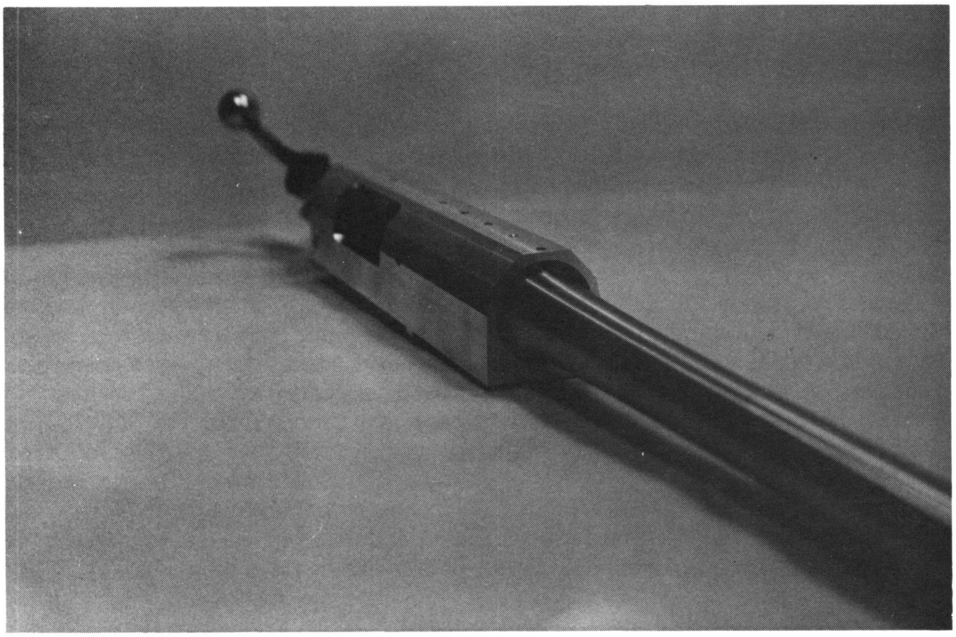
One day he was out on the open range, running some cattle (Editor: Well, at least he wasn't punching them), and came across a large badger which was moseying along, enjoying the warm sunshine, and generally minding its own business. Gene shook out a loop on his rope, and neatly dropped it over the badger's head. Before he could get the rope snubbed, the badger stepped out of the loop and hightailed it out of there.

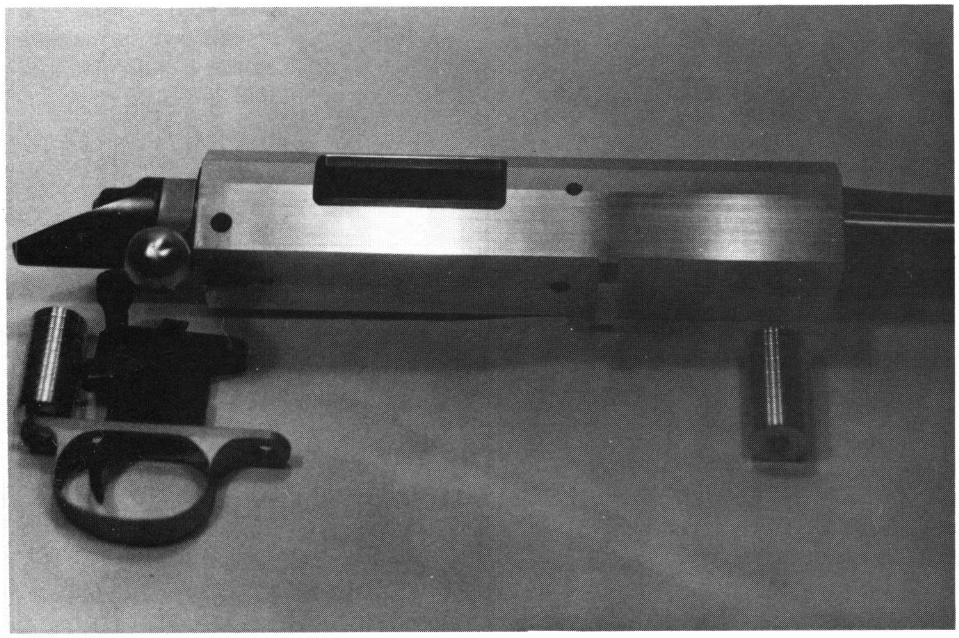
Gene kicked his horse in the ribs and chased the badger down, but it was again able to escape the rope, since it now realized that the fellow on the horse apparently wished him ill. About this time the badger ran under a large flat rock. Gene dismounted, and found a dead stick of sagebrush. Holding on to one stirrup he commenced to poke at the badger with the stick, all the while urging the thing to come out and fight fair. (Editor: Too bad that one of the cows that he had been punching around all these years didn't sneak up behind him about then, and rabbit punch him right off his feet).

The badger got tired of all that poking, and locked on the stick with his teeth. This started a determined tug of war, with neither side really winning. Gene was getting tired of this, and so was the badger. The badger lost its temper first, and climbed right up that stick, sort of getting in Gene's face, if you know what I mean.

Gene was packing a sixgun, but it was unavailable, for all practical purposes. One hand, you see, was hanging onto the stirrup of the saddle, while the other hand was holding onto a stick that just happened to







have a really agitated badger on the end of it. Two hands were, alas, all that Gene had brought into work with him that day.

About the time that the idea "This isn't working out at all" struck Gene . . . well, it seems as if Gene's horse had reached the same morbid conclusion a few seconds previously. The horse was also a gentle creature at heart, and things were apparently turning nasty just a few steps away. Whereupon said horse dropped the gearbox into four wheel drive, popped the clutch, and went a-heelin' out of there like Man-O-War comin' down the stretch at Saratoga. Gene wisely let go of the stick (as though he had a choice in the matter!) . . . but you will recall, good reader that his other hand was tied up with a stirrup . . . a stirrup on a saddle . . . on a horse . . . a horse that was hittin' somewhere around two hundred and fourteen miles an hour right about then. The badger, instead of watching the developments with interest, being a combative little stinker, reached the conclusion that the two cowards (cowboy and horse) were retreating before this fight even got warmed up, and if it was ever going to have a chance to take a bite out of the fellow's posterior, or the horse's leg . . . it was now or never . . . and promptly joined the steeplechase, growling, roaring, and teeth snapping, a short distance behind the now-wild-eyed cowboy. (Editor: It does sort of call to mind Oscar Wilde's great description of fox hunting . . . the unspeakable in pursuit of the inedible).

We will spare the readers a blow-by-blow of the next 60 seconds or so . . . even if it does rank right up there among the more exciting minutes of his life. Gene allowed as how he went quite a ways further than he intended to before he was able to get into the saddle. He gave up on roping badgers after

Continued on next page

Prairie Dog News

International Varmint Association

We all share information - where and how. Membership Jan. 1, to Dec. 31, 1989 and start with March issue, $12.00

INTERNATIONAL VARMINT ASSOCIATION

A FOUNDATION FOR THE CONSERVATION OF THE HUNTER AND THE HUNTED

2615 N. Fourth St., #603, Dept. PS,
Coeur d'Alene, Idaho 83814

BOYD MACE

Continued

that . . . went back to punching inoffensive cows.

I don't really know why I went off on this badger tangent, except to defend myself and my macho image from the taunts of the editor, who questioned my masculinity in a previous article when I mentioned the wisdom of walking around an angry badger. (Editor: Seely Masker tells me that he has never walked around an angry badger in his life).

On to firearms. My favorite gunsmith, Dan Lilja, had finally gotten around to sending my deuce back to me. Just in time for Christmas, too, which surprised my wife since she did not know that she was buying me this particular present. At any rate she soon got over it. (Editor: Sort of makes you wonder just what it was that she went out and charged, doesn't it? In my experience, women usually try to go one better in such cases).

A pretty little thing it is, too. It started life as a rather mundane Remimgton 722. Dan trued the action, and installed a Davidson octagonal sleeve. The barrel is 22 inches in length, and Dan's #5 contour; stainless of course. The chambering is .222 Remington, with a .245 neck. I've attached a few photos herewith.

I called Fred Sinclair, and ordered a hunter class McMillan stock. When I get to it I intend to pillar bed with aluminum pillars, and just bolt it together. I have on hand one of the new Weaver 15X scopes, and I'm interested in seeing just how good it is. The quality of fit and finish looks good, but I'm not too impressed with the crosshairs.

The deuce should make a nice, light, accurate rifle that I can use on prairie dogs and rockchucks in odd corners that I can't reach with my big guns. The Old Fart has a .22-250 on a Mexican Mauser action that he uses for this purpose, although it has a thumbhole stock that occasionally makes it awkward to carry around. Not many live varmint shooters use sleeve actions . . . and my main purpose in providing these photos it to establish that they can, if done properly, look pretty good on a varmint rifle.

Speaking of the Old Fart, he was wondering aloud the other day about finding something other that prairie dogs to shoot at long range. Something to break up the monotony, so to speak. (Editor: Well, you could always rope badgers, or punch cows). After a while of brainstorming on the subject, all we could come up with was the possibility of air rifles at 50 paces on ants. But precision air rifles cost a decent amount of money . . . and it just wasn't that good an idea anyway.

NORTHWINDS GUNSMITHING

Dear Dave

PS has not published too much lately from north of the border, and I thought that I would drop you a line, and fill you in on some Northwest developments and philosophy. (Editor: As long as you're not going to run around in a Canadian Mountie get-up, singing "Stout Hearted Men", we can probably handle it all right).

You don't know me, and never heard of me. I grew up in Muncy, Pennsylvania (Editor: Those of us who continue to play with accuracy rifles after 20 or 30 years have probably not stopped "growing up"). Right in the heart of benchrest country. Sulphur Springs was home for me for twenty years. If you looked way back in the records, mostly toward the bottom, you'll find my name somewhere in the Juniors section, shooting a Star barreled Enfield 1917 action, in .243 Winchester caliber. (I told you that it was "way back"). So, 18 years later, after a tour with the U.S. Marines, Beirut, Athens, and finally today, in Saskatoon, Saskatchewan, Canada. (Editor: Why did you leave Beirut? The shooting sports are very popular over there).

I'm a full bore shooter (those funny guys in Canada that shoot long barreled, slow twist rifles in .308 out to 1,000 yards). I'm also a gunsmith at Northwinds Gunsmithing, which specializes in building competition rifles for those who participate in such goings on.

My good friend and mentor Bill Wylde has been telling me to write to you for ages. Seems like I just never got around to doing it. I am the first graduate of G.I.T. (Greenup Institute of Technology), Class of '88.

I've enjoyed all the happy nonsense that fills the pages of PS each month, from slamfires to Prairie Dog Wars, and five hundred yard five inch groups with 7mm Mags with secret bullets. By the way, we do that consistently with .308s with iron sights and Canadian military ammunition!

Like I said, I'm a riflesmith, dedicated to building top of the line rifles for top of the line shooters. Much of what I do in building a competition rifle parallels with benchrest technology; just the barrels and calibers are different. I've done a lot of work testing and trying different ideas to make rifles that will shoot our ammo. It's a bit trickier to build rifles around the ammunition, and not be able to tailor the ammo to the rifle.

I have lots of what I think are good ideas for articles that may be of interest to PS readers. Like the soon to come article from Bill Wylde and myself about shooting the .223 out to 1,000 yards SUCCESSFULLY at the Canadian Nationals last summer.

I figured that I had to break the ice somehow, so you know at least who I am now, or at the very least, where I am now. Keep up the good work, and please overlook the typing errors. I finally got a personal computer, but have found that the stupid thing doesn't spell any better than my stupid typewriter.

I've enclosed a copy of a cartoon drawn by a good friend of mine in Ontario. Thought that you might enjoy it.

Best wishes to you and your readers for 1990, from north of the border.

Jim Dugan
Northwinds Gunsmithing
501-E 45th St. East
Saskatoon, Saskatchewan
Canada S7K 0W3
(306) 242-2128

BERGER BULLETS

.224 Caliber
52 grain
60-65 grain $9.50 per hundred
6mm Caliber
60-62-65-68 grain
80 grain $10.00 per hundred

Distributor for J-4 Jackets

Lead wire .185 diameter
½ of one per cent antimony
$40.00 per 40 lb. roll

POWDER
T32 $70.00 per 8 lb. container

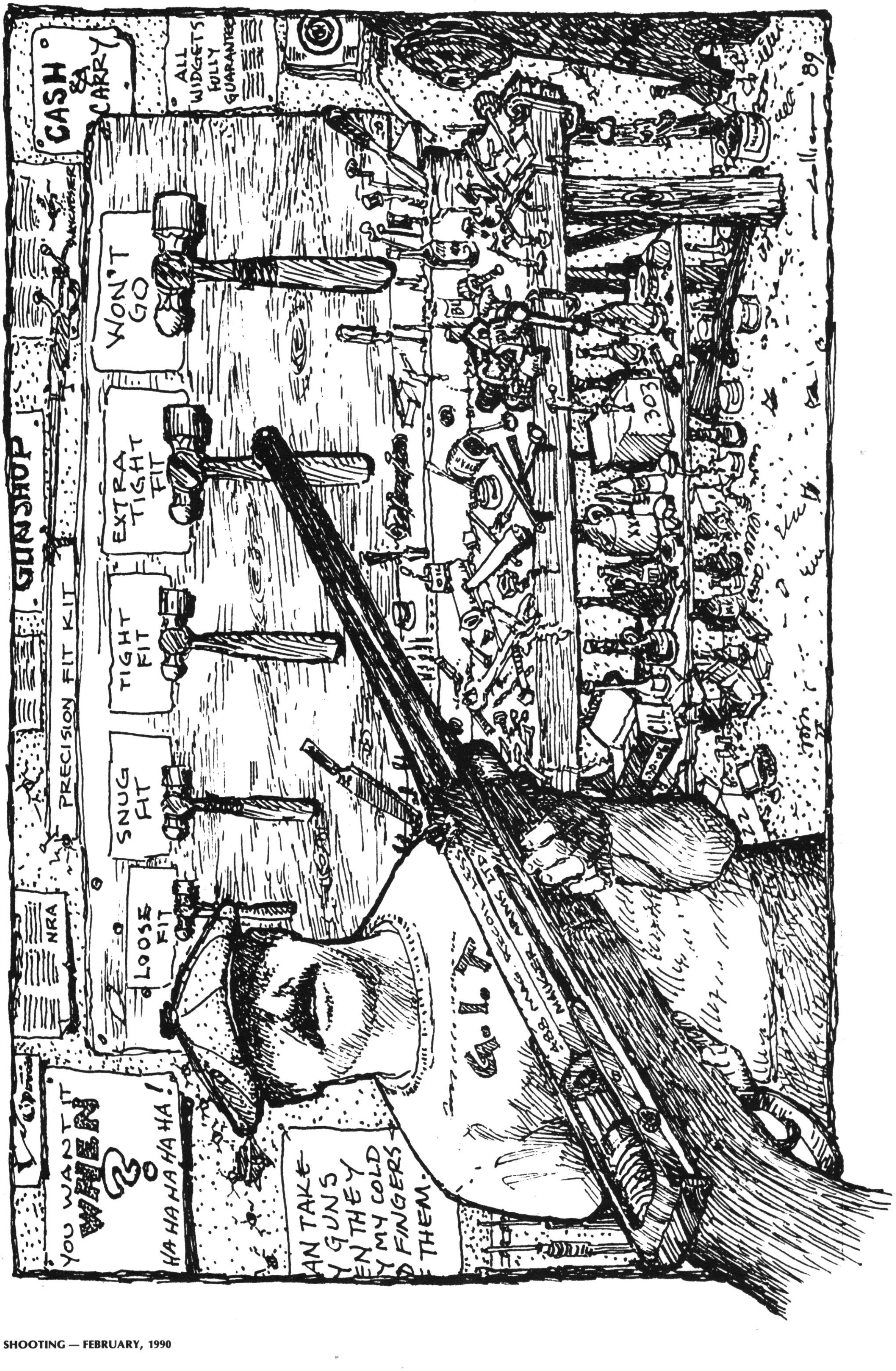
4234 N. 63rd Avenue
Phoenix, Arizona 85033
(602) 846-5791

RAIL MACHINE RESTS

Hall Style, one piece base, made with hardened stainless steel, and aluminum. Adjustable sighter cam. $1,400, plus shipping.

BUD WELSH

80 New Road, East Amherst, N.Y. 14051
(716) 688-6344 (before 2:00 pm)


GUNSHOP
CASH & CARRY
ALL WIDGETS FULLY GUARANTEED
PRECISION FIT KIT
WON'T GO
EXTRA TIGHT FIT
TIGHT FIT
SNUG FIT
LOOSE FIT
NRA
YOU WANT IT WHEN? HA HA HA HA HA!
AN TAKE
Y GUNS
EN THEY
Y MY COLD
D FINGERS
THEM.
G.L.T.
.488 MAG MAKER ARMS LTD
RECOIL-LESS
303
XXX
'89

CREIGHTON AUDETTE

Dear Merrill:

Thank you for your letter of December 7. I trust you will not object if I comment on several of the views you expressed.

Bullet slippage, producing land marks on fired bullets which are wider than the lands in the barrel from which the bullet was fired are common. It is not a question of whether the rear 50% of the bullet upsets, or how much of the bullet upsets, it is a question of the strength of the bullet alloy in shear versus the forces to which the bullet is subjected in its passage out of the case, through the throat and down the bore. There is very little data available on the shear strength of lead and lead alloys, since these metals are not generally used in service where they are subjected to shear, except in bullets. Lead, relative to its melting point of 621 degrees F, and to absolute zero, -460 degrees F, the point at which all molecular action ceases, is actually "hot" at room temperature. Its characteristics, relatively speaking, can be compared with steel at forging temperatures, where it has much lower strength than steel at room temperature and reacts to bending, compression, tension or shear much like taffee candy. The shear strength of pure lead is only about 1800 psi, but I have found no data on the shear strength of lead alloys. In describing lead alloy bearing materials, "Machinery's Handbook" states: "When considering the effect of temperature, it may be considered that a temperature rise of 100 degrees F will halve the strength of the metal." This would be a rise from normal room temperature.

Since the lands are only .0025″ to .004″ in height, the area of of the bore which is in shear contact with the bullet is very small. In stress calculations, impact loads are given twice the value of static loads and bullet engraving, which happens in a few microseconds, is certainly an impact load. Measuring the illustration of bullet 160-308 RCBS in your November article and calculating its proportions, the total bullet land length in contact with the .004″ high, rifling lands is approximately .25″, when there is not enough upset of the bullet nose to give appreciable contact on the sides of the lands. This gives a contact area of .001 square inches per land, or .006 square inches with the 6 land barrel. If 1 square inch of pure lead will resist a force of 1800 pounds in shear, before yielding, .006 square inches will resist only 10.8 pounds before yielding, in a static situation. Divide by 2 for impact loads and the figure is 5.4 pounds. Overstressed in shear, lead bullets start to yield at comparatively low stress, producing land marks wider than the actual lands and channels for gas escape which vaporizes lead and deposits it down the barrel ahead of the bullet, producing leading and poor grouping, though the land marks on the bullet may appear quite smooth, as a result of surface melting by the hot gases. This does not refer to conditions which produce obvious gas cutting. Recovered bullets will look quite normal, unless the land marks are measured under a microscope with a measuring reticle and compared with the marks on a lead slug, carefully upset in the same barrel. I have measured land marks on .45 caliber bullets which were .018″ to .020″ wider than the lands in the barrel. And these are marks where both sides of the channel are very nearly parallel, not the somewhat triangular shape seen on fired pistol bullets. Any bullet slippage is detrimental to accuracy and the degradation is roughly proportional to the amount of slippage. Slippage also tends to cause leading, due to gas blow by vaporizing the lead, which is then deposited in the bore, ahead of the bullet and ironed on to the bore surface by bullet passage.

Describing the P wad as "a controlled fluid" would seem to be at odds with the laws of physics. It is a solid and reacts to stress like most solids, except that it is more elastic than most solids. Stressed within the elastic limit it will resume its original shape, when the stress is removed. Stresses beyond the elastic limit produce permanent deformation, as in the case of the wad I fired, which hit the raised lettering on the body of the skyscreen, producing a mirror image of that lettering.

Reference to a textbook on "strength of materials" or to Marks' "Mechanical Engineering Handbook" will give information on what happens when a body, such as the P wad, is placed under compressive stress. Figure 1, copied from this book, shows a cube under compressive stresses P and P.

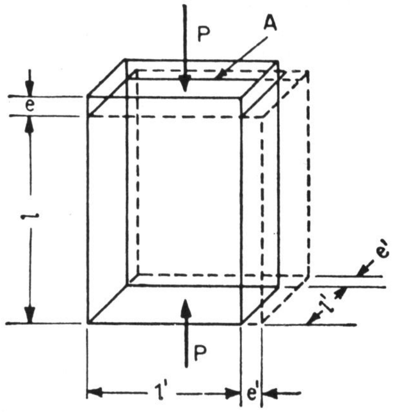
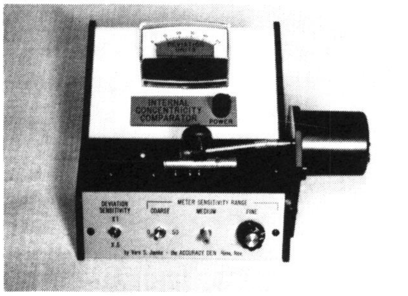


Fig. 1

These compressive forces cause deformations, also called "strains", so the cube is shortened in the axis of the forces and wid-



ELECTRONIC WALL THICKNESS TESTER FOR SELECTING
● Cases ● Bullets ● Jackets
New Model with Motor Drive
A milestone in accuracy aid devices
For more information call or write:
the ACCURACY DEN
25 Bitterbush Rd. Reno, Nev. 89523
702/345/0225

SCHNEIDER RIFLE BARRELS, INC.

Pull buttoned in Stainless Steel.
22 RF thru .375 calibers.
Standard and custom contouring,
including fluting with lapping and
stress relief **afterwards.**

GARY SCHNEIDER
12202 N. 62 PL.
SCOTTSDALE, ARIZONA 85254
TEL. (602) 948-2525

25 Caliber Specialist
Barrel and chamber work for
match and predator shooting.
Other calibers as well
Standard cartridges, as well as the
Ackley and TCU lines of wildcats
S&W Gunshop Inc
366 S. Maine
Fallon, Nev.
423-4067
"Built with benchrest blood"
SASE for info
Ron Ryder
S&W Gunshop Inc.
366 S. Maine
Fallon, Nevada 89406
(702) 423-4067

ened at 90 degrees to those forces. To quote the handbook:

> Accompanying a longitudinal deformation e, is a lateral deformation, e', (Fig. 1). The ratio of s'/s is Poisson's ratio, m. Values of m are : glass, 0.244; brass, 0.333; steel, 0.303; lead, 0.430, concrete, 0.10 to 0.20 at working stresses and 0.25 at higher stresses.
>
> (1 is length, A is area, e is gross longitudinal deformation, s is unit longitudinal deformation, s' is unit lateral deformation, and m is Poisson's ratio.)
>
> Stress is an internal distributed force; it is the internal, mechanical reaction of the material accompanying deformation. Stress always occur in pairs. (In the situation of the P wad, longitudinal stress is accompanied by lateral stress.)

If the wad were made of brass, each unit of compressive stress would produce a unit lateral stress of .333, within the elastic limit. With increasing force Poisson's ratio gradually increases until there is sufficient force to cause plastic flow, when it reaches a maximum of .5, in the case of ductile metals. I am not sure that the figure of .5 maximum is correct for other materials, but "Machinery's Handbook" lists Poisson's ratio for rubber as .5 and it seems reasonable that this ratio would be not far wrong for polyethylene.

On this assumption the unit pressure of the surface of the wad on the diameter, where it is constrained from expanding by the barrel bore would be half of the unit pressure of the powder gases and that is why a thin, flat P wad is actually a poor seal against gas pressure.

Whether the chamber gas pressure is less than the compressive strength of the wad is immaterial. As soon as the gas pressure increases above the static pressure inside the loaded, cartridge case, the longitudinal compressive force on the wad produces a corresponding increase in the unit pressure of the wad diameter on the bore which will be .5 times the unit gas pressure.

The problems associated with lead fouling, or copper alloy bullet jacket fouling, in rifled bores are difficult to understand, unless one has a bore scope and can examine the effects of various cleaning procedures. With a borescope it is possible to see the copper fouling, where looking through the bore simply will not reveal it. Even in the best of hand lapped barrels, there will often be a thin layer of copper, literally welded to the bore surface and it often takes dozens of applications of bore solvent to dissolve it. The only leading which comes out with conventional cleaning methods with brushes, solvent and patches is loose particles and those particles not firmly attached to the bore. There are times when the bore may be "tinned" with a smooth, thin layer of lead fouling, which is very difficult to see, even with a borescope and virtually impossible to remove, except with proper use of abrasives.

Claude Roderick, of Monette, MO, was one of the original founders of the National Muzzle Loading Rifle Association, a master machinist, single shot rifle enthusiast and a most thorough experimenter. Years ago, his articles appeared in "Muzzle Blasts" and in "Precision Shooting" and he wrote of just this phenomenon in experiments with scheutzen rifles. The thing that convinced me that it does happen was the experience of using lead-tin solder to attach ramp front sights to rifle barrels. With the ramp held by a jig, both surfaces tinned, then heated together, I would wipe off the excess solder with a cotton cloth while the solder was still fluid. Using very fine abrasive cloth, I would then remove the solder on the barrel outside the joint. I found that the only way I could tell when I had removed all the solder was to use a cold blue which would blue the steel, but had little effect on the solder. Without that, I could not tell where the surface was solder and where it was steel. I have since observed the same phenomenon with lead fouling in rifle bores which Roderick described. It was very difficult to see the fouling in the borescope and abrasives had to be used to remove it.

Virtually every barrel which has been fired with jacketed bullets will have some jacket fouling in the barrel, after normal cleaning methods. The usual method of wetting the bore with solvent, waiting for some period of time, then repeating the process until evidence of copper residue is not found on a patch does not necessarily guarantee that the bore is free of copper fouling. I often find it, with the borescope, after just such an attempt at bore cleaning.

I doubt if the usual, thin films of copper fouling, scattered here and there in the bore, have much effect on lead bullet grouping, since the copper fouling is much harder than the lead and the requirements for a plain bearing are fulfilled. It is unlikely that the coefficient of friction between lead and steel and lead and copper, in the presence of lubricant, is significantly different. If shooting has developed a thin layer of lead fouling, literally soldered to the bore, that fouling must be removed before satisfactory grouping with lead bullets can be achieved. Claude Roderick made that clear in his experiments and writings and my own experience leads me to believe he was correct.

I think it likely that it was not copper fouling from the gas checks which you removed in your cleaning that made the difference in subsequent shooting, but lead fouling.

Sincerely yours,
Creighton

VARMINT BULLETS - WHOLESALE PRICES
Spring's Coming! 1000's can be mixed.
22 cal HP: 42, 45, 52, 55, 62gr - $58.50/M, $8.60/100
6mm: 70gr HP, 80gr PSP - $74.60/M, $9.65/100 Postpaid

James Calhoon

6035 Penworth Rd. S.E. (403) 235-2959
Calgary, Alberta, Canada T2A 4E9

Lilja Precision Rifle Barrels, Inc.

Proven in the major Benchrest Tournaments: The Super Shoot, NBRSA and IBS Nationals, The Cactus, The Crawfish, and Regional Matches.

Lilja Barrels are available in stainless steel for:

- Benchrest
- 1000 Yard Benchrest
- Rifle and Pistol Silhouette
- Highpower
- Smallbore
- High Grade Hunting Rifles

Special Contours, duplication of some commercial contours and fluting on request. Sporter contour barrels available in chrome - moly. Fitting and chambering offered on a limited basis. For more information contact:

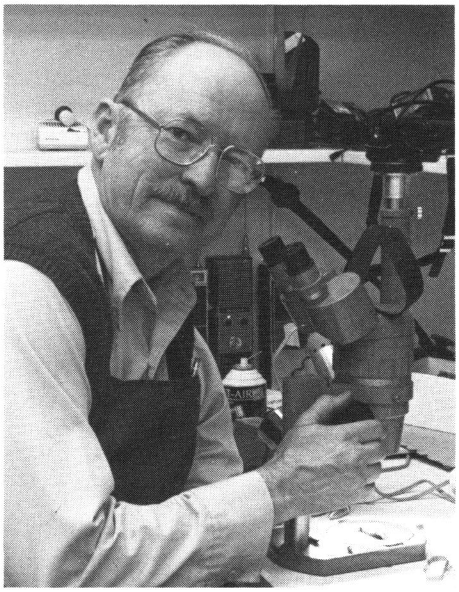
Lilja Precision Rifle Barrels, Inc.
P.O. Box 372
Plains, Montana 59859
(406) 826-3084

Jarrett Rifles Inc.
Gunsmith Kenny Jarrett · Specializing in
HIGH GRADE HUNTING AND TARGET RIFLES

WORLD CLASS ACCURACY!
Since 1982, benchrest shooters have broken 14 world records with rifles built by me. I use the same materials, techniques, and standard of quality when building rifles and XP-100 handguns for varmint shooting and big game hunting. **$3.00** for Information Package.

Kenny Jarrett; Jarrett Rifles, Inc.
383 Brown Road, Jackson, S.C. 29831 • (803) 471-3616.

MERRILL MARTIN



Just going "bang" with cast bullets is easy! But, "precision" shooting with cast bullets is something else and has got to be the most frustrating, infuriating and disgusting experience one day, and the most gratifying the next. Now, after several years, we think we have plain base cast bullets down pretty pat and can sort of predict what will happen. But, working on the Gas Check version of cast bullets is like starting all over again regarding accuracy. Everyone assumed (as usual) that gas checks, as store-bought, fit bullets as cast. Mostly, it isn't so. To shoot accurately, they must be a squeak fit, not have clearance up to .007″ on the bullet heel. Lubrication that worked fine for plain base is different with the copper cup. My favorite P-wads that make me a hero with plain base bullets only increase accuracy with GC bullets if the bullet and bore are a poor fit and in poor condition; otherwise, the P-wads slightly open the groups with the more vigorous pressures possible with gas checks.

Possible accuracy? The "goal" is a 1/2 minute of angle group **where you want it.** This will win in **any** competition using cast bullets, or in regular Hunter bench for score. Not every shooting association scores bench matches the same way. Some score from center of the hole and others from the tangent edge — one big difference when the 10 ring may only be 1/2″ or 3/4″ in diameter at 100 yards.

I was really proud of myself in one match until I found that they were scoring from the center of hole, not the tangent edge.

Yes, I believe that cast bullets can keep up in Hunter Bench matches for score — a real challenge!!

Anyone starting from scratch to shoot lead bullets and having a choice of cartridge should use a rimmed case. Rimless brass is a "pain in the butt" as it is always shortening up its head space as the lower pressures are not enough to keep the primers seated. Pistol primers are a must with rimless cases, but their powder selection is very limited. Rimmed cases are great. If you have a lathe, the rims can be evened up to all the same thickness, giving super head space control if your gunsmith cooperates when chambering to your final rim thickness. A Rem 788 30/30 can be adjusted with simple shims in the two-piece bolt for head space control. A good "do it yourself" gun.

To find out how good your stuff will shoot, start out with one of the easiest combinations. Blue Dot powder and pistol primers. P-wads for plain base and P-wads optional for gas checks. Lube, I am embarassed about; the gas checks just don't shoot as well with the plain base lubes. If I had one choice, it's hands down — NEI Hawkeye. That's Texaco Taurak 250 in disguise. The Rooster lubes are good with the plain base and the Hawkeye okay; but, the Hawkeye can't be equalled with GC for velocity or clean barrel. It's simple 30 wt. mineral oil in a high temperature soap base — don't try to melt it. The brass gas check and real mineral oil seem made for each other. Every load chronographs faster with Hawkeye plus a lower Sd and better groups.

The GC gives the required drag with Hawkeye needed for the uniform powder burn. The draggy lubes with GC's lower the velocity and foul the barrel earlier.

I'm getting reams of printed chrono tape as evidence.

Hardness control is a must for gas check loads if the velocity is to be pushed over 1800 FPS. At BHN 15, it's easy to go 2200 FPS (30 Cal. 175 gr.) and not foul the barrel. Going for 2400 at that hardness, the group opened up (all over the target), but still didn't lead the barrel for some reason (Hawkeye lube).

This research ceases to be interesting pushing heavy bullets fast in light rifles (pain). Out hunting, a few heavy rounds are not a bother, but a half dozen 10-round groups trying to hold your best sight picture produces headaches for real. And, for some diabolical reason, the heaviest load of the heaviest bullets seems to shoot the tightest groups. The Elmer Keith factor, I suspect.

Don't throw slightly wrinkled or rough looking bullets back in the pot until you have weighed them. Sorting by weight and indexed mold cavity is mandatory for accuracy. I would give up one of my rifles before giving up my Ainsworth Electronic scale. It's so fast that every powder charge gets weighed too.

You learn casting technique by weighing each bullet as fast as you cast and drop it. The goal is the heaviest possible bullet which indicates the least voids. Bottom pour with a gap for the metal to drop and overflow to catch up with the shrinkage is still best. Even how you tilt the mold and distance of drop shows up. A balance scale would be frustrating as the mold would cool off as you weighed. That brings us back around to my earlier articles on thermometers in the pot and mold. Given a choice, it would be in the mold every time. 25°F makes the difference between good and bad castings. Once you find that working temperature, the next time around you heat the mold directly to that temperature and your first pour is a good one.

It's a real helpless feeling working with a mold that has no thermometer in it.

Big 45 Cal. bullets in the 400-500 grain range can be improved by several grains weight by just adjusting the temperature and holding it. Those large bullets are a real challenge to cast uniformly, but all of the above works on them in spades. And, since the big bullets are not pushed fast, they must be cast soft — like 8 to 9 BHN (under real hardness control). Yes, some masochistic types do push big bullets fast and, again, the rule follows — up the hardness to the proper level — never over 15 BHN!!

Pressure lapping has reduced the bore resistance of the bullet moving forward to such a degree that it's now difficult to get proper back pressure for proper powder burn unless suitable steps are taken. With rifle powders, it's usually necessary to step up to a hotter primer to get the fire properly lit.

Shotgun powders are designed for lower resistance, so are the number one choice for plain base, medium-velocity loads. Don't use hot primers with the shotgun powders.

The resistance has dropped to such a degree that I've broken several rifle extractors from the rimless cases being forced forward by the primer pressure, and the case isn't moving back, even though the bullet was against the Lands.

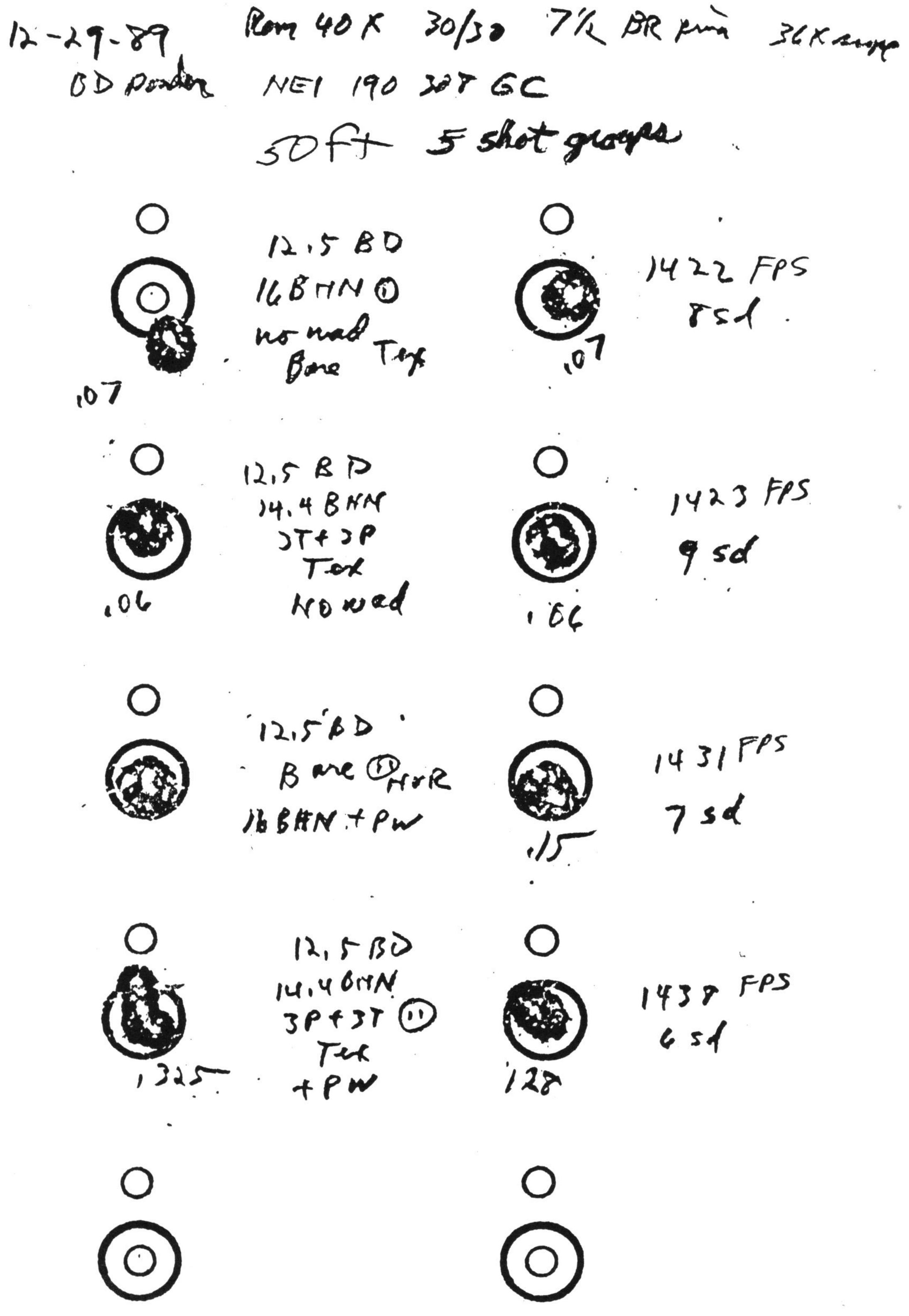
We put up with all this trouble because the accuracy keeps getting better.

With the shooters getting lapping kits, we will have others helping solve some of these challenges to sanity.

Yours truly,
Merrill D. Martin

P.S. In the process of using my 50′ tunnel, I've developed a way to project the results to expect out to 100 yards. If a load will group into a .1″ for a 5-shot group at 50′, 6X that will be .6″ for 100 yards theoretically, no wind conditions. In practice, this is working quite well. When the groups are under .1″ at 50″, you know it's not a bad load to go to the range with.

Note the sample target I've worked out. Different size rings for different calibers. This one is for .30 and a .1″ spread will stay inside the ring. Aiming point above for groups, in the center for single shots hunter style.


12-29-89
Rem 40X 30/30 7½ BR prim 36X scope
BD powder NEI 190 308 GC
50ft 5 shot groups
12.5 BD
16BHN ①
no wad
Bore Tex
.07
1422 FPS
8 sd
.07
12.5 BD
14.4 BHN
3T+3P
Tex
No wad
.06
1423 FPS
9 sd
.06
12.5 BD
Bore ⑪ HvR
16 BHN + PW
1431 FPS
7 sd
.15
12.5 BD
14.4 BHN
3P+3T ⑪
Tex
+PW
.325
1438 FPS
6 sd
.128

FRANK McCUNE

As the proud owner of a Remington 700 in .17 Remington caliber, I shall share some information with the readership about a factory recall on the little rascals. About ten days or so ago a friend called me to tell me that the Remington 17s were being recalled. I knew nothing about it at the time, although since then the recall notice has appeared in The Handloader (Jan.-Feb., 1990, Number 143, page 59), and American Rifleman (Jan. 1990, article index page). I proceeded to call the 1-800 number in those announcement ads, and was kind of persistent in wanting the background on the recall. In the interests of “anything to shut him up”, I learned quite a bit of background.

Around 1980 Remington made the decision to go to a chrome moly barrel for the .17 Remington. Up until that point all factory rifles produced in .17 caliber had been sent forth with stainless barrels only. But they had a devil of a time trying to match the barrel coloration with the receiver coloration.

So now enters a new era of .17 Remingtons, with chrome moly barrels. A perfect color match is now possible with barrel and action. Peace descends over Happy Valley, the birds are singing, the flowers blooming, and all is well.

Now we come forward to 1990, and Happy Valley is in disarray. Total disarray. (Editor: stop right there . . . I love it! What a wonderful name for a new wildcat! I can see it now . . . the 6mm Total Disarray! Go ahead, tell me that doesn’t have a ring to it!).

So, what is wrong with chrome moly .17 caliber barrels, you ask? (Editor: not me. I’m just sitting here minding my own business . . . admittedly unusual among the PS editorial staff . . . don’t look at me . . . I’m not asking provocative questions tonight . . . John Gammuto is in charge of stirring up .17 caliber fights). Well, for whatever the reason, large stress cracks began to form, from the chamber end, and work their way toward the muzzle. These cracks appeared at 6:00 o’clock, and at 12:00 o’clock. (Editor: our writer is talking about their appearance in the barrel proper; he is not talking about the time of their arrival). I’ve asked the people at Remington . . . why for? Admittedly it is speculation . . . but speculation is all we can do. They theorize that . . . since these barrels were made by the hammer forge method . . . there was a certain amount of “tremendous stress” set up in the barrels. So what, you reply, barrels have been turned out by the hammer forge method by many of our major factories for decades now. So why the sudden problem? Good observation, Boopsie. We can only conclude that the relatively small bore size of .172 is somehow the culprit. Hammer forged barrels in .224 size, the next step up in generally available bore size, have shown no similar problems. It seems that, as the rifle was fired, it is a natural development that erosion cracks begin to form in the area immediately in front of the chamber. Due to the small bore size these erosion cracks were proportionately larger (in relation to bore size). As the erosion cracks spread, and grew in size . . . stresses were released . . . and barrels began to split. The stresses, we are told, were of a compression nature on the outside, and tension nature on the inside (of the barrel). As we look back on things (hindsight is always 20-20), perhaps a different method of stress relieving would have prevented this problem. We can only theorize at this point in time.

What seems more important than restrospective theory at the moment is what you should do with your factory Remington 700 in .17 caliber. The factory recall involves only .17 caliber rifles made since January 1, 1981. Unless you are the original owner of the rifle, and your firearms records show clear and convincing proof that you purchased your rifle prior to that date . . . don’t fool around . . . take five minutes, make the toll-free call . . . and find out for certain.

In the U.S. the toll-free number is 1-800-634-2459. In Canada the number to call is 1-800-634-5401. You must tell the Remington people the serial number of your rifle. If your rifle is one of those which come under the conditions of the recall order, you will be given specific instructions where to ship your rifle to (at the main Remington plant at Ilion, New York).

Upon their physical inspection, and confirmation that your rifle is one of those with the problem, Remington will replace the barrel, polish the action, and blue both the barrel and action. For all practical purposes you will have a new barreled action.

Remember to call the 800 phone number first. (Note that we did not give out the shipping address). And no, you cannot have your old barrel back. (Editor: we suspect that certain types would perhaps give this barrel “free’ to some soul that they did not particularly like . . . and hope for a spectacular barrel split thereafter). (Editor: Please do not take off the defective barrel yourself, and mail to either the editor or the assistant editor. We’ve already received two dozen Remington .17 barrels so far this week . . . all mailed without return addresses, and several of them having brief, unsigned notes, with little messages such as “enjoy”.)

When I spoke to Remington about my rifle, they asked me, when I sent it back, to enclose information concerning what loads I had been shooting. Was it factory ammo? If handloads, what were the loads?

Frank McCune
Box 141
Blain, Pa. 17006

SCHNEIDER BULLETS

22 CAL. — 52 GRAIN @ $9.50 per 100

6MM — 63, 65, 68, 70 GRAIN @ $10.50 per 100 BT or FB

30 CAL. 110 - 150 @ $15.50 per 100

All bullets made in carbide dies on selected jackets.

Shipping charges will be invoiced.

ROGER SCHNEIDER
3655 West 214th Street
Fairview Park, Ohio 44126
(216) 333-1581

Fire Power ILLUSTRATED
THE NEXT GENERATION
A CLOSE LOOK AT GUNS & GEAR FOR THE 1990's AND BEYOND
AS FEATURED IN OUR CATALOG:
S.M.A.R.T. GUNS
AN UNBELIEVABLE COLLECTION
SEND $5.00 FOR OUR LATEST MILITARY - SCIENCE CATALOG
(201) 654-4374 INFORMATION
"YOU WON'T BE DISAPPOINTED"
FPi G.P.O. BOX 7 DEPT. L390
CRANFORD, NEW JERSEY
07016 U.S.A.

NEXT TIME
SMALL SILENT
HAND WEAPONS

© 1990 FPI

OPTICAL SERVICES CO.

60% POWER INCREASE FOR AMERICAN MADE TARGET SCOPES, 75$, WEAVER T SCOPE BLUE PRINT 45$, T-6 REDIAPHRAM FOR PARALLAX CORRECTION AND INCREASED RESOLUTION (BLUE PRINT + 10$), IN-STOCK LEUPOLD AND WEAVER DOTS 45$, SPECIAL ORDER RETICLES 55$, CUSTOM WORK (CALL FOR QUOTE). WE BUY/SELL WEAVER T'S.

BILL ACKERMAN
10236 WOODWAY
EL PASO, TEXAS 79925
915 592-5338

BROUGHTON RIFLE BARRELS

by

Kenny Jarrett

The name "Broughton" has been prominent in benchrest shooting for a large number of years. His main fame has come from his ability to produce more than his fair share of championship winning benchrest rifles. The type of reputation that Harold Broughton has achieved is not a gift, it's not donated or bestowed; rather it has to be earned, fair and square, on countless firing lines, over and over again.

If you appraise a person in any field of endeavor, be it professional or non professional . . . when you start looking for opinions of value, the best place to start is, beyond question, with that person's peers . . . those in the same field of endeavor as he is.

A collection of top flight accuracy gunsmiths will give Harold Broughton's name a lot of respect . . . it will finish mighty high on the totem pole any time the question of the mythical "best" is debated.

It is no soap opera secret that Harold Broughton and I have been friends for a long time. Indeed without his training and instruction in the early days, Jarrett Rifles may never have become the reality that it is today. (Editor: Jarrett Rifles currently has nine employees. At the rate that they are currently growing we expect them to start manufacturing cars, whole cars, in a year or two). At the beginning of my gunsmithing career I thought I knew how to chamber a barrel properly. At his kind invitation I went to visit Harold, in Big Spring, Texas. Two weeks later . . . now I knew how to chamber a barrel. Harold is an uncompromising perfectionist at his craft. I don't know when Harold last used the phrase "good enough" . . . maybe it was when he was in kindergarten . . . maybe he never used it even back then. He taught me to do a task to perfection . . . and keep trying to improve off that. Harold seems to think that perfection is a good starting point . . . lesser mortals feel that perfection is a stopping point!

Because it is widely known that Harold was my original mentor (and still is, for that matter), he keeps an eye on any success that might come our way. Recently we learned that our 15th world record would hang on the wall. I don't know how many Harold's guns have in the record books, but I suspect that if one were to combine the record certificates for the two shops . . . we'd be able to cover a pretty decent sized wall.

About five years ago Harold told me that he wanted to make rifle barrels. The tone of his voice suggested that he was determined to make rifle barrels, come hell or high water. Knowing the man's determination to accomplish what he set out to do in life, I was pretty sure that Harold Broughton would indeed make rifle barrels some day. This comes from knowing him a while . . . if he told me today that he was determined to build skyscrapers, I would ask him, with considerable interest, what city he planned to start building in first. Harold has had to deal with some pretty good sized health problems along the way. Two artificial knee joint replacements, plus having to continually deal with diabetes doesn't make things any easier.

Over a period of years Harold began to build and assemble the tools and machinery that he would need to turn out a button rifled barrel in the way that he felt a barrel should be made. Harold had his own ideas on the subject, but it must be said that he had picked up his ideas in good company. He had spent a lot of time with Pat McMillan, at the height of Pat's career, before he eventually sold his business. He also spent a lot of time in Ed Shilen's shop in Texas. Jerry Hart and Harold have been friends for many years. If you are talking about button rifled accuracy barrels, those are three pretty fair names to drop into the name-dropping!

Harold has been close to all three of these barrel makers for many years. Their help and encouragement over the years is a true testament to the kind of people that are in the custom rifle industry. With Pat McMillan it was a direct thing; Harold spent a lot of time in the McMillan shop, observing the very successful McMillan barrels being made on a first hand basis. Jerry Hart's contribution has been from simply answering questions relevant to the two million or so problems that might arise when one sets out from ground zero to build super accurate barrels. The final influence, and possibly the greatest influence, was Ed Shilen. Ed is an extremely knowledgeable rifle person; and he had no qualms or reservations about helping a person that he knew would be a small time direct competitor, sooner or later. In fact Ed was so willing to help that he actually made some barrels a few years back that Harold wanted to see done to prove or disprove his four groove theory. This was before Harold had completed his equipment assembly.

As Harold began to accumulate his machinery the first piece that was operational was his rifling machine. Ed Shilen continued to help, by pre-drilling and reaming the rifle blanks. Harold would rifle and hand lap them in his shop.

Well, I was in the Broughton shop early in January, 1990, and I am pleased to be able to tell you that the Broughton barrel is no longer a hybrid; it is now made entirely by Harold, in his shop. Over several days I watched the different operatons performed; those steps necessary to make a button rifled barrel starting with a bar of 416R stainless steel. I was very favorably impressed with the whole operation. Harold's attention to detail, such as the maintenance of his tooling lies somewhere between extremism and fanaticism. For example, after each barrel is completed there is a painstaking inspection of the rifling button that Harold regards as derigueur. Possibly his greatest innovation however was his button rifling machine. He pulls the button through the barrel with a guiding means that guarantees the uniformity of the selected rate of twist for the entire length of that barrel. This in itself is quite an innovation in button rifling, where button slippage has always been something to struggle with. To further improve on his final result I saw Harold hand lapping his barrels with a lead lap that was twice as long as any I've ever seen used before.

Broughton barrels are all made from 416R stainless steel. Maximum size is from a .1250 inch straight, and goes down to a No. 2 Douglas taper. They are all hand lapped, and match grade. Harold shares the same opinion of the top barrel makers that the type and quality of the barrel steel that we are working with today could be improved on.

Both he and I agree that there are a number of darn good barrel makers already out there, and it is neither his desire nor his dream to sell everyone a Broughton barrel. Harold is medically retired from his job of thirty years due to his knee problems; his desire is simply to be able to make a living in his back yard shop, along with his wife Juanez, and an occasional helping hand from his youngest son, Bruce. All of the barrel making is done by Harold. This includes

Continued on next page

HERTER'S ADAPTER
Universal (RCBS-type) shellholders fit Herter presses using this all-steel adapter, with spring retainer. $14.25 plus $1 postage, from **Vega Tool Company, 1840 Commerce St. Unit H, Boulder, CO 80301.**
(303) 443-4750

BROUGHTON RIFLE BARRELS

Continued

his own digital read out heat treat furnace, which allows him more complete control of his product.

His greatest need right now is to get some of these barrels on the firing line, and see how they stack up with everyone else's. I personally think that another quality barrel maker is a good thing for everyone in the accuracy game . . . especially when all the good ones already have more work than they can handle anyway. This is obvious from the waiting time on barrel orders. Harold is currently quoting a 30 day delivery on his barrels.

We have personally tested two Broughton barrels at our shop. A 30 caliber, 10 twist, 4 groove was chambered for the standard .308 Winchester for accuracy testing. The barrel is a No. 4 taper, on a Remington 700 action, in a McMillan Sako Hunter stock. We cut the barrel to a 22 inch length, and the last six groups averaged .488 per five shot group, with 41.0 grains of H4895 and 168 grain Sierra Match King bullets. This with Federal 210 BR primers and Frontier cases.

The second barrel is an undersize heavy varmint 6mm with a 14 inch twist, and again a 4 groove configuration. I put this barrel on my own light varmint Stolle action rifle, and I'm still testing it, but I've been able to come up with enough groups in the .150-210 range in my early testing to keep a smile on my face. The barrel cleans up as easy as any that I've ever owned. I have not used any Sweets on it at all so far.

There is no need to drag yourself away from something that you have a lot of confidence in. But if you are of a mind to try something new . . . then you simply must try a Broughton barrel! You didn't read it first in the National Enquirer; you heard it first from me, right here in good old Precision Shooting magazine. Broughton barrels will shortly be a force to be reckoned with . . . and I think "shortly" is already here. I guarantee you that matches will be won with them in 1990!

Calibers and twists available:

.224 caliber	4 groove	twist 10-12-14
.243 caliber	4 groove	twist 10-12-14
7mm caliber	4 groove	twist 10-12-14
30 caliber	4 groove	twist 10-12-14

338-375-416 coming soon.

For more information, contact: Harold's Custom Gun Shop, Inc., Route 1, Box 447, Big Spring, Texas 79720. Phone (915) 394-4430.

— end —

TRADING POST

One man's "Junk" is another man's "Collector's Item!" Turn your surplus items into cash with a Trading Post ad. ORDER FROM EDITOR.

Groups of figures, abbreviations and initials count as words. Hyphenated word counts as two words. Name and address of advertiser is counted. Use full words instead of initials and abbreviations and make your meaning entirely clear.

Classified type ads: no display. **Rates:** 15 cents per word per insertion, prepaid. Minimum charge is $1.50. Closing date for ads is the 1st of the month preceding publication. To illustrate: we must have your ad copy in hand by August 1st to make the September issue.

FOR SALE: Three Dan Dowling built varmint rifles. A .22-243 Middlested, Remington 40X single shot action, Hart stainless 25″ barrel, McMillan camoflage stock, B&L 6X24 target scope, 350 rounds, $1,150. A 22-250, same as above, except Remington 700 sleeved action, B&L 6X24 target scope, 350 rounds, $1,050. A .223, same as above, except B&L 12X32 scope, 35 rounds, $1,100. $3,000 for all three rifles. Also have $2,500 worth of everything you need for this sport. Ultra-Mag press, BR measure, over 60 pounds assorted powder, bullets, cleaning rods, jags, brushes, Sinclair seating gauge, primer pocket tool, rifle vise, Hart rest and bags, case trimmer, gun cases, dies, and chronograph screens, stands, etc., much, much more. Everything highest quality. Will take $4,500 for everything. Won't sell any of this reloading stuff until all guns are sold. (702) 456-4844. Dennis Whitaker.

FOR SALE: Stolle Grizzly rail gun. Wooden stock, round receiver, 22 caliber, large bolt face. Rests, 2 oz. trigger, $800.00. Sleeved XP-100, 6PPC, new Hart barrel, sporter, $600.00. Stolle Panda, 6PPC, new Hart barrel, heavy varmint, $800.00. Bob Simonson, P.O. Box 277, Schoolcraft, Michigan 49087, (616) 679-5572.

WANTED: Wichita 1375 action, right hand bolt, left hand port. I will buy for cash, or 6mm boat-tail bullets, or both. Don Gentner (215) 459-9189.

FOR SALE: Brand new Leupold 36X BR scope. $295.00. Blaine (801) 773-2985.

WANTED: Remington Model 37, Model 40XR and/or Winchester Model 52C or 52D rifles (all .22 Rimfire) any condition. Top prices paid. Macky Locklin 512-854-0497.

NEW Stolle Teddy action with two bolts, $775.; Simonson rail (top), $350.; Smart rail (top) with block for Hart, $250.; Hart rings for 1A/4, $30.; Brackney PPC size die, $30.; Leupold 3.5-10X Variable, $200.; Love rear rest with cam for Unlimited, $100.; after 6 Central, 913-272-8144, ask for Jerry.

FOR SALE: Meyer rail gun, 6PPC, extras, $1200. Sinclair/Redding powder measure, all the extras, $110. MCS/PAS coned bolt for 40X, new, $125. Back issues of Handloader magazine. 402-556-7838.

FOR SALE: Rorschach carbide swages (22's & 6's) unl and varmint class bench rifles, hunting rifles, scopes etc. too much to list. Send SASE for complete list. P.L.D., 312 Grand Ave. #23, Waxahachie, Tx. 75105.

FOR TRADE: Attention Gunsmiths! Over $3000.00 worth of new Cleveland Twist Drill cutting tools. High Speed Steel, Cobalt and Solid Carbide drills, taps & end mills. Carbide Insert Milling Cutters and Turning Tools. Trade for LV or HV rifle built on Wichita action or equivalent: .22BR or .22PPC caliber preferred. Call Tim at (619) 941-4552 or write for detailed description; 3747 Via Baldona, Oceanside, CA 92056.

FOR SALE: Two Shilen DGA actions, one nickel plated, one blued. .308 bolt faces. $400.00 each. Steve (404) 323-3884.

WANTED: Fired case, Cerrosafe cast, chamber dimension drawing and/or name and address of gunsmith able to chamber for the 7mm or 30 Gibbs of the late R.E. Gibbs, of Viola, Idaho. Gordon (313) 468-5383.

FOR SALE: New Corbin bullet making equipment. .224, 6mm, and .308 jacketed, flat base, open tip dies, and one press per caliber. $400.00 per caliber. .308 jacketed, flat base and rebated boat tail dies, and one press, $600.00. Core moulds, adjustable core cutter, cannular tool, 22LR spent case jacket makers for .224 and 6mm. Corbin and J4 jackets. Four extra presses and more. Reloading press bullet swage. 3 die sets, 224 and 6mm. $200.00 each caliber. No press. Jim Hoffman, 6831 Inverness Dr., Springfield, VA 22150. (703) 451-0047.

WANTED: Weaver T25, Lyman Super Targetspot 25 or Leupold 24X in good shape. Must be reasonable. Billy Sterling, 2702 15th St., Port Neches, Texas 77651.

FOR SALE: HV 6PPC, 262 neck, new, never fired. Wichita action, Hart rings, Shilen 2 oz. trigger, Hart barrel, McMillan graphite stock, painted, your choice of colors, with seating and neck gauge and rod guide, $1,550. FFL required. Dies available. For switch barrel HV-HB (cruiser), including change weights and 1.250″ heavy bench Hart barrel, add $415. These guns not in on-hand inventory, built to order. Seely Masker (716) 689-8894.

WANTED: Remington XP100 or 600, 222 bolt face. Either entire action, or bolt only. Seely Masker (716) 689-8894.

FOR SALE: Sporter, 6PPC, .262 neck, new, never fired, Panda action, Kelbly rings, Shilen 2 oz. trigger, Hart barrel, McMillan stock, painted (your choice of color), with seat and neck gauge and rod guide. Dies available. $1,580.00. These guns not in on-hand inventory, built to order. Seely Masker (716) 689-8894.

WANTED: Saeco or Masker-Saeco powder measures. I have noticed some advertised for sale from time to time; be aware we maintain an ongoing market (both buy and sell), and you will not be disappointed with my offer. Also, I repair Masker measures for the cost of parts and shipping. Seely Masker.

CHANGING YOUR ADDRESS?

Please let us know, well in advance, what your new address will be. Send your old address too — even better, enclose the address label from a recent issue. The Post Office will not forward your copies unless you pay extra postage, but we will see that your "Precision Shooting" reaches you, without interruption, if you notify us six weeks in advance of your move. Write to Precision Shooting, 5735 Sherwood Forest Drive, Akron, Ohio 44319.

When giving your address please add your Zip Code number.

BACK ISSUES

are available from: John Hollister, R.D. #2, Box 2395, Whitehall, New York 12887-9539. Inquiries by mail only, please. Make checks payable to Precision Shooting.

1-24 issues, $2.00 apiece
over 24 issues, $1.50 apiece

REDDING MODEL
3 BR MATCH
POWDER MEASURE
79.95 plus 2.50 shipping

SAGEBRUSH RELOADING
"REDDING-SAECO DEALER"
DPT. PS 366 S MAINE
FALLON, NV 89406
702 423 4067

DAVE SAITO

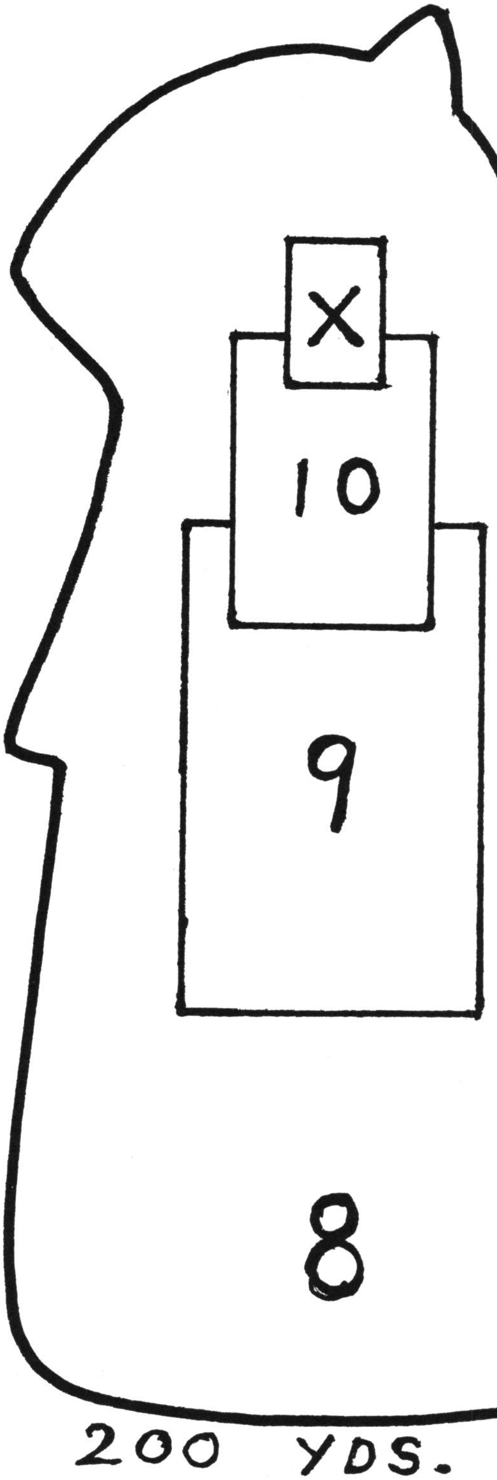
Dear Dave

I read with interest Bill Creasy's article on shooting at targets "that are a lot of fun."

I am attaching herewith (Editor: reproduced here) a target that we use in this neck of the woods for our informal 200 yard matches. When the wind is whipping around, that "X" becomes surprisingly elusive; just go out a bit on either side, and you find yourself with an "8", and a pained look as well.

I suggest that Bill Creasy and his friends have some fun with this target. By the way, three cheers for PS! (Editor: Why? Did we do something right? If so, who did it?).

Dave Saito
1515 - 168th Avenue
San Leandro, Calif. 94578
(415) 276-3003



IBS News

Edited by Dave Brennan

EUROPEAN BENCHREST SHOOTER OF THE YEAR 1989

1.) European Super Shoot

Heavy Varmint

Negri, T.	9
Arnezi	7
Falk	5
Gluck	3
Colli	1

Light Varmint

Negri, T.	9
Falk	7
Menke	5
Colli	3
Poetsch	1

2.) Dobbiaco

Elsner	9
Falk	7
Favaron	5
Casanova	3
Widman, E.	1

3.) Rheine

Vignola	9
Braconi	7
Negri, T.	5
Negri, .F	3
Poetsch	1

4.) Saalfelden

Casanova	9
Poussiere	7
Poetsch	5
Condomines	3
Shipman	1

5.) Souppes S/Loing

Cancelled

6.) Bisley

Becker	9
Braconi	7
Falk	5
Leetham, P.	3
Berhman, J.	1

European Benchrest Shooter of the Year 1989

1 Falk	24 points
2 Negri, T.	23 points
3 Braconi	14 points
4 Casanova	12 points
5 Eisner	9 points
5 Vignola	9 points
5 Becker	9 points
8 Arenzi	7 points
8 Poussiere	7 points
10 Poetsch	6 points
11 Menke	5 points
11 Favaron	5 points
13 Colli	4 points
14 Negri, F.	3 points
14 Condomines	3 points
14 Leetham, P.	3 points
17 Shipman	1 points
17 Widman, E.	1 points
17 Berhman, J.	1 points

European Benchrest Shooter's Hall of Fame Results Through the End of 1989

J.C. Braconi (inducted)	21 points
Negri, A. (inducted)	13 points
Cauvin, B. (inducted)	11 points
Casanova, L.	9 points
Duplessis, H.	5 points
Serain, R.	4 points
Cristav, J.J.	4 points
Arenzi, E.	4 points
Falk, E.	3 points
Williams, F.	3 points
Menke, M.	3 points
Colli, I.	3 points
Probst, R.	3 points
Vignola, G.	3 points
Becker, E.	3 points
Hammerich, P.	2 points
Eisner, M.	2 points
Boell, E.	1 point
Poetsch, M.	1 point
Minneman, B	1 point
Gluck, G.	1 point
Manfredini, G.F.	1 point
Negri, F.	1 point
Rossel, R.	1 point
Favaron, M.	1 point

DOBBIACO, ITALY
June 10-11, 1989
(41 shooters)

100 Meters

1.) Favaron, Mario	.2013
2.) Eisner, Manfred	.2385
3.) Falk, Herwig	.2500

200 Meters

1.) Casanova, Luigi	.2385
2.) Widmann, Ekkehard	.2386
3.) DePolo, Giuseppe	.2893

Grand Agg

1.) Eisner, Manfred	.2701
2.) Falk, Herwig	.2715
3.) Favaron, Mario	.2716
4.) Casanova, Luigi	.2852
5.) Widmann, Ekkehard	.2899

RHEINE, GERMANY
July 7-8, 1989
(13 shooters)

100 Meters

1.) Braconi, J.C.	.2445
2.) Hutter, Helmut	.2467
3.) Negri, Toni	.2898

200 Meters

1.) Vignola, Giuseppe	.2652
2.) Negri, Franco	.2684
3.) Negri, Toni	.3067

Grand Agg

1.) Vignola, Giuseppe	.2829
2.) Braconi, J.C.	.2831
3.) Negri, Toni	.2983
4.) Negri, Franco	.3009
5.) Potsch, Michael	.3025

SAALFELDEN, AUSTRIA

August 12-13, 1989
(38 shooters)

100 Meters

1.) Braconi, J.C.	.2357
2.) Grassle, Herman	.2393
3.) Shipman, Al	.2500

200 Meters

1.) Casanova, Luigi	.2212
2.) Poussiere	.2566
3.) Troin	.2624

Grand Agg

1.) Casanova, Luigi	.2433
2.) Poussiere	.2639
3.) Potsch, Michael	.2708
4.) Condomines, P.	.2891
5.) Shipman, Al	.2913

WIESBADEN, GERMANY

September 22-23, 1989
(24 shooters)

100 Meters

1.) Berger, Walt	.2115
2.) Menke, Martin	.2138
3.) Kochendorfer, Klaus	.2332

300 Meters

1.) Rossel, Richard	.3379
2.) Salvia	.4097
3.) Berger, Walt	.4110

Grand Agg

1.) Berger, Walt	.3112
2.) Duplessi, Herve	.3395
3.) Meke, Martin	.3471
4.) Salvia	.3513
5.) Rossel, Richard	.3727

BISLEY, ENGLAND

September 21-22, 1989
(13 shooters)

100 Meters

1.) J.C. Braconi	.2252
2.) I. Leetham	.2622
3.) E. Becker	.2640

200 Meters

1.) E. Becker	.3367
2.) H. Falck	.3591
3.) P. Leetham	.3891

Grand Agg

1.) E. Becker	.3003
2.) J.C. Braconi	.3080
3.) H. Falk	.3429
4.) P. Leetham	.3813
5.) J. Behrman	.4236

ITALIAN VARMINT CHAMPIONSHIPS

September 30 - October 1, 1989
(21 shooters)

100 Meters

1.) Rossi, Roberto	.2162
2.) Lusvardi, Gherardo	.2268
3.) Tincani, Daniele	.2292

200 Meters

1.) Casanova, Luigi	.2302
2.) Arenzi, Enrico	.2459
3.) Lusvardi, Gherardo	.2526

Grand Agg

1.) Casanova, Luigi	.2360
2.) Lusvardi, Gherardo	.2397
3.) Arenzi, Enrico	.2462
4.) Bracnoi, J.C.	.2488
5.) Tincani, Daniele	.2539

CODOGNO, ITALY
Left to right: L. Casanova, G. Lusvardi, R. Rossi, D. Tincani, J.C. Braconi

DOBBIACO, ITALY
Left to right: L. Casanova, M. Favaron, M. Eisner, H. Widdman, H. Falk, G. De Polo

SAALFELDEN, AUSTRIA
Left to right: J.P. Troin, M. Poetsch, L. Casanova, J. C. Braconi, H. Poussiere
(the big pretzels were the 4th place aggregate awards)

BISLEY, ENGLAND
Left to right: N. Jones, H. Falk, E. Becker, P. Leetham, J.C. Braconi, I. Leetham

RHEINE, GERMANY
Left to right: A. Negri, J.C. Braconi, G. Vignola, H. Hutter, F. Negri

PENNSYLVANIA SCORE SHOOTING CHAMPIONSHIPS - 1989

Photos and captions courtesy of Joe Gilbert

All hell broke out here late in the afternoon — heavy rains, thunder and dark clouds, to sunny, etc.

Crowd waiting for awards! After the wind and rains, you can see the cool cats shivering etc.!

Joe Gilbert — I could only win three 3rd place and one 4th in H & VH, but then not too many took back home more than four awards!!

Bill Creasy at mike with Randy talking, while the one and only Guy Green is receiving a special award for breaking his own Htr record a while back.

Dwight Furrow of Maine placing 2nd in Var-Hunter Grand Agg.

Bruce Rollins of Maine.

Gary Long awarding Hunter class Pennsylvania championship to Vince Pastorella.

Gary awarding Varmint Hunter championship to Mike Williams. Another possible record at 100 yards with 250-22x.

Bill Gebhardt winning UFS championship. Possibly new record 500-31x. Please match report!

INTERNATIONAL BENCHREST SHOOTERS
CLUBLIST

sortname	Street Address	City	State	Zip Code	Club Director	Country
A.F.T.B.R.	14 RUE DES SOLEIL	NICE		06100	JEAN CLAUDE BRACONI	FRANCE
BENCHREST SHOOTERS OF CANADA	BOX 238	LEADER	SA	SON 1HO	WAYNE MILLER	CANADA
CAMILLUS SPORTSMEN'S CLUB	420 HAWLEY AVE	CAMILLUS	NY	13203	HANK GONNELLA	USA
CAPITOL CITY R & P	17 FOREST AVE	AUGUSTA	ME	04330	JOE GILBERT	USA
CENTRAL JERSEY R&P CLUB	436 S. 5TH AVE.	HIGHLANND PARK	NJ	08904	GEZA NAGY	USA
DBRV	BAHNHOFSTR.2	4284 HEIDEN			MARTIN MENKE	WEST GERMANY
DUNHAMS BAY FISH & GAME CLUB, INC.	112 FEEDER ST.	HUDSON FALLS	NY	12839	WALT HODGES	USA
ENGLISHTOWN BENCHREST SHOOTERS ASSOC.	8 NEW JERSEY AVE	HOPATCHONG	NJ	07849	BOB WHITE	USA
FACTORYVILLE SPORTSMEN CLUB	RD1 1005 PHEASANT RD	CLARKS SUMMIT	PA	18411	PAUL RYAN	USA
FAIRCHANCE GUN CLUB	RD#2 BOX 21	SMITHFIELD	PA	15478	ROY LECKEMBY	USA
GENESEE CONSERVATION LEAGUE	P.O. BOX 92327	ROCHESTER	NY	14692	JOHN C. WAGNER	USA
Guthsville Rod & Gun Club	P.O. Box 156	Orefield	Pa	18069	DAVID KERN	USA
I.W.L.A.-York	RD#4, Box 535	Red Lion	Pa	17356	CHARLES KINARD	USA
JEFFERSON COUNTY I.W.L.A.	905 RED BUD DRIVE, FOREST HILLS ESTATES	MARTINSBURG	WV	25401	BOB BROYLES	USA
JOHN PALMISANO MEMORIAL RANGE (COUNCIL CUP,PA)	431 CONKLIN TOWN ROAD	RINGWOOD	NJ	07456	DR LOU PALMISANO	USA
KELBLY'S RIFLE RANGE	7222 DALTON FOX LAKE ROAD	NORTH LAWRENCE	OH	44666	GEORGE KELBLY	USA
MAINVILLE SPORTSMEN CLUB	RD#3, BOX 572	BLOOMSBURG	PA	17815	RANDY FRITZ	USA
MARKSMAN GUN CLUB	P.O. BOX 655	PERRY	OH	44081		USA
ORIGINAL 100 YARD BENCHREST CLUB	P.O. BOX 1413	WILLIAMSPORT	PA	17701	SARAH MORGAN	USA
PAINTED POST FIELD AND STREAM	P.O. BOX 325	CORNING	NY	14830	CRAIG BARAVELLE	USA
PENTICTON SHOOTING SPORTS	SITE 35 COMP 3 RR3	PENTICTON	BC	V2A 7K8	RON JOHNSTON	CANADA
PINE TREE RIFLE CLUB INC.	P.O. BOX 45	JOHNSTOWN	NY	12095	CHARLES CLARK	USA
PRAIRIE DOG TARGET CLUB		PORCUPINE	SD	57772	DON DECKERT	USA
SALISBURY ROD & GUN	100 LLOYD STREET	SALISBURY	MD	21801	RON POISKER	USA
SELKIRK BENCHREST CLUB	10 PARK ROAD	SELKIRK	MA	R1A 0B3	MURRAY BENSON	CANADA
SNOW SHOE GUN CLUB	P.O. BOX 125	KENAI	AK	99611		USA
SOUTH CREEK ROD & GUN	RD#1	LAWRENCEVILLE	PA	16929	JACK DEMING	USA
SPORT SHOOTERS ASSOCIATION OF AUSTRALIA	418 GLYBURN ROAD	ERINDALE		5066	BRENDAN ATKINSON	AUSTRALIA
SULPHYR SPRINGS R&G	304 SOUTH MARKET STREET	MUNCY	PA	17756	JOHN PFLEEGOR	USA
THURMONT CONSERVATION CLUB	11113 PUTNAM ROAD	THURMONT	MD	21788	RICHARD PRYOR	USA
TITUSVILE SPORTSMEN'S CLUB	BOX 110	TITUSVILLE	PA	16354	LARRY SHEATS	USA
U.T.I.B.R.	C/O T.S.N.	CODOGNO	FOMBIO	20070	REMO CACCIA	ITALY
UNION COUNTY SPORTSMEN	RD#1	MILLMONT	PA	17845	RICHARD ALTEMUS	USA

INTERNATIONAL BENCHREST SHOOTERS APPLICATION

NAME ______________________________

ADDRESS ______________________________

CITY________________ STATE______________ ZIP__________

( ) IBS Membership and Precision Shooting Magazine — $30/year

( ) Associate Membership — Must live in same household as a Regular Member — receives no magazine — $5.00/year

( ) Junior member — 17 and under — no magazine — $5.00/year

( ) Overseas Membership — Includes Precision Shooting Magazine $42.50 in US Funds for Surface Mail
$60.00 in US Funds for Air Mail

( ) Life Membership — includes Precision Shooting Magazine — $300.00 in US Funds

( ) Club Membership $30.00 for American Continents
$37.50 Overseas (US Funds only) (For Surface Mail)

MAIL MEMBERSHIPS TO: JOAN BORDEN, R.D. #1 Box 244A, Tunkhannock, Pa. 18657

Make checks payable to IBS.

CHANGING YOUR ADDRESS?

Please let us know, well in advance, what your new address will be. Send your old address too — even better, enclose the address label from a recent issue. The Post Office will not forward your copies unless you pay extra postage, but we will see that your "Precision Shooting" reaches you, without interruption, if you notify us six weeks in advance of your move. Write to Precision Shooting, 5735 Sherwood Forest Drive, Akron, Ohio 44319.

When giving your address please add your Zip Code number.

1990 IBS Championships

200/300 yard
Long Distance Championships
June 9th and 10th, Mainville, Pa.

National Championships (4 gun)
August 20-25th
Kelbly's Range, No. Lawrence, Ohio

Score Championships
September 8-9th
Mainville, Pa.

FINLAND

The Editor was looking over the report of the "North Europe Championships", held in Finland on September 8-9-10, when his startled attention was drawn to the number of competitors . . . like, SIXTY shooters! Good gravy . . . next thing you know . . . they'll be coming over here and carrying away our trophies . . . a practice that is becoming increasingly popular in Europe these days, it seems. As I look over the equipment listing, it seems that they are, among other things, making their own action, barrels . . . and even vodka (the latter does not appear in the equipment listings; the Editor has discovered it by personal, and painstaking research).

The three day match consisted of: 1.) five groups of five shots at 100 meters, 2.) five groups of five shots at 300 meters, 3.) three groups of ten shots at 600 meters. It is of interest that, despite that little 600 yard gambit . . . the 6PPC still swept the top ten placings.

Top finishers at the yardages:

100 meters: 1.) R. Kiviniitty 6.56 (we are not talking in terms of inches here, so don't get excited), 2.) J. Pertulla 7.08, 3.) R. Lindroos 7.30, 4.) R. Rantaturikka 7.42, 5.) J. Stenroos 7.60, 6.) R. Kiviniitty 7.94, 7.) P. Niemela 8.28, 8.) R. Olkkonen 8.46, 9.) L. Haukiravina 8.48, 10.) P. Rajafa 8.70.

300 meters: 1.) R. Muvisoja 37.18, 2.) S. Hamaloinen 38.18, 3.) P. Rajala 41.2, 4.) R. Kiviniitty 44.36, 5.) P. Vanhapelto 44.82.

600 meters: 1.) M. Haataine 150.5, 2.) P. Vanhapelto 151.8, 3.) P. Isoaho 162.5, 4.) A. Valkkila 174.7, 5.) R. Lindroos 187.9.

Oh yes, we neglected to mention . . . this was the heavy varmint class that was contested.

DUNHAMS BAY

The first match of the winter league at Dunhams Bay was held on Sunday, January 7th. As in previous years, heavy varmint class was contested at 100 meters, and hunter class at 100 yards. Matches are registered with the IBS.

In heavy varmint class (31 shooters) BILL NIEMI was the only shooter to make it into the twos so there must have been some sort of weather moving around out in front of the targets. The top ten shooters were: 1.) Bill Niemi .2896, 2.) Dick Maretzo .3008, 3.) Bob Sicina .3028, 4.) Dave Parsons .3176, 5.) Norm Dixon .3206, 6.) Lee Euber .3314, 7.) Vince Giaimo .3348, 8.) Myles Hollister .3428, 9.) Don Sargood .3462, 10.) Brett Devliegher .3484. Don Cameron took small group honors with a .136 on his final target. The agg winner, Bill Niemi, shot his own action, barrel and 68 grain bullets . . . with himself as both gunsmith and stocker. Details on things that he did not do himself: a 6PPC, 28.0 grains of T322 with Remington 7½ primers, and a Leupold 36 scope.

IRA FARNSWORTH came into the station ahead of the other 8 shooters in the hunter class. Top five were: 1.) Ira Farnsworth 247-8x, 2.) Tom Svack 246-11x, 3.) Bill Niemi 244-5x, 4.) Bill Carpenter 243-10x, 5.) Barry DeVliegher 242-4x. Mr. Farnsworth shot a 30 IHMSA, Remington 700 action, Hart barrel, Leupold 6X scope, 39.8 grains of 760 powder with Sierra 168 grain match bullets and Federal 215 primers. Ira did his own gunsmithing.

BACK ISSUES

are available from: John Hollister, R.D. #2, Box 2395, Whitehall, New York 12887-9539. Inquiries by mail only, please. Make checks payable to Precision Shooting.

1-24 issues, $2.00 apiece
over 24 issues, $1.50 apiece

FINLAND
WINNING EQUIPMENT

Shooter	Caliber	Action	Barrel	Scope	Load	Bullet	Gunsmith
Kiviniitty	6PPC	Junttila	Hart	Leu. 36	28.2-H322	Rubright 65	Junttila
Perttula	6PPC	Remington	Hart	Leu. 36	26.5-K133	Sierra 70	R.W. Hart
Lindroos	6PPC	Laaksonen	Sako	Leu. 24	27.5-K133	Euber 68	Laaksonen
Rantaatorikka	6PPC	Laaksonen	Hart	Leu. 36	26.7-H322	Euber 68	Junttila
Stenroos	6PPC	Shilen	Shilen	Leu. 36	29.5-N201	Euber 68	Stenroos
Kiviniitty	6PPC	Junttila	Hart	Leu. 36	27.5-H322	Berger 68	Junttila
Niemela	6PPC	Laaksonen	Sako	Leu. 36	28.0-K133	Repe 68	Laaksonen
Olkkonen	6PPC	Laaksonen	Makinen	Leu. 20	28.0-K135	Euber 68	Laaksonen
Haukiravina	6PPC	Laaksonen	Makinen	Leu. 24	29.5-N201	Watson 68	Laaksonen
Rajala	6PPC	Stolle	Hart	Leu. 24	27.0-H322	Nosler 70	Junttila

LETTER TO THE EDITOR

Dear Dave

I just finished dropping a line to Merrill Martin. I'm anxious to try one of his "fire lapping" kits; sure hope that the offered 100 free kits are not all spoken for when my letter arrives!

I owe my start in benchrest shooting to a gentleman named Joe Gilbert, of Augusta, Maine. I owe him a lot, and indeed the sport of benchrest shooting in the northeast also "owes" Joe Gilbert . . . and owes a lot.

I'm about six months from using up the last of my "rookie" eligibility, as the IBS sets things. I've been lucky . . . had a few surprising wins (well, they surprised me, anyway). I've read, with a chuckle, a few of the articles in PS this past year about rookies, and the screwy things they do, from time to time. Yes, we screw up a lot, but we're alway lurking in the background, and from time to time we're going to sneak up on you! (Editor: sounds like a scene out of "Death Wish" to me).

I've known Joe Gilbert for a number of years. We became acquainted when I joined the shooting club that he helped found. We became friends. Capitol City Rifle & Pistol Club, in Augusta, Maine, this year marked its twenty fifth anniversary. Joe Gilbert was honored by having the main outdoor range at the club co-named for him. This is the range that we do our benchrest shooting on. It is easy to take from a sport, and enjoy it. It is more difficult to realize that the sport can't have all takers . . . there have to be a reasonable number of givers . . . if the sport is to do well. Joe Gilbert has been a giver, for years and years.

My friend was "after" me to try benchrest shooting, a program that he started here in Maine, several years ago. At that first match I used his equipment, and he did the loading for me as well. Joe won that match, with a 250-14x score, but he must have looked over his shoulder at me a few times, as I pulled into the station with a 250-11x score. A smaller person than Joe Gilbert would have decided that maybe this loaning of equipment was not the most intelligent thing to do. Not Joe, he's still trying to get new shooters to use his equipment at the next match.

After that first match I was hooked; had to get one of these rifles. Joe Gilbert helped me round up all the components that I would need, and then spent a goodly amount of time teaching me the correct ways to load and shoot.

Joe Gilbert is no local-Maine-only shooter. He's been the IBS Score Shooter of the Year twice! There's a number of shooters up here who feel that if Joe Gilbert says the sun will rise in the west tomorrow . . . then that's where they would look for tomorrow's sunrise. His word and his knowledge are that well regarded! I've developed, as a shooter, to the point where I've beaten him once or twice. Not often . . . just once or twice. He acted as if he were delighted . . . to have his pupil beat him! He taught me well. And what greater legacy can any of us leave behind them than our knowledge. For the selfish ones, their wisdom dies with them. For the givers, their knowledge lives on . . . in those that they taught.

We've traveled together to out of state matches, sharing the expenses, as well as the victories and the defeats. We've laughed at our screw ups, ranging from a critical cross fire at the Nationals, and possibly the loss of the championship, to a mad scurrying from the firing line, to retrieve a missing bolt. We laugh because we realize that this is a hobby, not a life or death struggle. I have seen people in other sports forget this. Joe Gilbert is a serious competitor, but he has not forgotten that this is for pleasure.

There have been many benchrest shooters who have helped me as a rookie. Their contributions were no less meaningful. Dan Caruso, the 1988 IBS hunter class champion, Ira Farnsworth from Vermont, Vince Pastorella, Tom Svack, Charlie Fountaine, Gary Long, Blaine Johnson, to name a few. Each of them put a little something back into the sport.

But, if there's anyone that I truly "owe", it's Joe Gilbert, of Augusta, Maine. And I know that several other shooters also "owe" the gentleman.

Bruce Rollins
Route #1, Box 1058
Coopers Mills, Me. 04341

INTERNATIONAL BENCHREST SHOOTERS

IBS OFFICERS

PRESIDENT
James F. Borden
R.D. #1 Box 244A
Tunkhannock, Pa. 18657
Phone: (717) 833-2234

VICE PRESIDENT and
MATCH SCHEDULE CHMN.
Jim Oliver
10161 Jay Knapp Road
Dansville, New York 14437
Phone: (716) 335-5617

2nd VICE PRESIDENT
John Brown Jr.
Rt. #1, Box 223
McGaheysville, Va. 22840
Phone: (703) 289-5365

TREASURER
Brian Hollister
R.F.D. #2, Box 60
Whitehall, New York 12887
Phone: (518) 499-1569

SECRETARY
James Greenawalt
102 Brandon Road
Yonkers, New York 10704
Phone: (914) 776-1581

RECORDING SECRETARY
Joan Borden
R.D. #1 Box 244A
Tunkhannock, Pa. 18657
Phone: (717) 833-2234

PAST PRESIDENT
Robert A. White
8 New Jersey Avenue
Lake Hopatcong, NJ 07849
Phone: (201) 663-5159 (home)

IBS EDITOR
David D. Brennan
37 Burnham Street
East Hartford, Conn. 06108
Phone: (203) 289-8775
Work (203) 643-1157

TARGETS

Target #	Distance	Description	Size	Tgts Per Carton	Shipping Weight Per Ctn	Price Per 100 Tgts
IBS-B/1	100 Yard	Benchrest Black	8x15½	500	15#	6.70
IBS-B/2	200 Yard	Benchrest Black	8x16½	500	15#	6.70
IBS-B/3	300 Yard	Benchrest Red	12x23½	250	19#	20.50
IBS-H/1	100 Yard	Hunter Black	12x19	250	14#	10.00
IBS-H/2	200 Yard	Hunter Black	13x31	250	15#	10.00
IBS-H/3	300 Yard	Hunter Red	13x26	250	22#	23.75

Speedwell Division, Rockwood Corporation, 136 Lincoln Blvd, Middlesex, NJ 08846
201-560-7171 or 800-243-8274

PROJECT “1200”

Project “1200 is a membership drive. The program is designed to increase the INTERNATIONAL BENCHREST SHOOTERS membership to 1200 individuals. This is the first membership drive sponsored by the I.B.S. and presents an opportunity for current members to share the organization with a friend who is interested in accuracy, competition and friendship. There is no other organization which offers the same benefits that the I.B.S. offers to its members **Accurate guns, Accurate shooting,** and **Accurate information.**

Project “1200” will be conducted in four recruiting periods, each period lasting three months as listed below.

PERIOD 1 - OCTOBER 1, 1989 TO DECEMBER 31, 1989
PERIOD 2 - JANUARY 1, 1990 TO MARCH 31, 1990
PERIOD 3 - APRIL 1, 1990 TO JUNE 30, 1990
PERIOD 4 - JULY 1, 1990 TO SEPTEMBER 30, 1990

Project “1200” will have four levels of achievement. A current member who signs up 3 new members during one recruiting period (one of which can be his renewal membership) will receive a **hat** with a unique and distinct **IBS Recruiter patch embroidered** on the front. Sign up 5 new members during one recruiting period and receive a heavyweight I.B.S. polo shirt. Sign up 10 members over the course of the recruiting year and receive a windbreaker with an appropriate and significant patch of distinction. A bonus award in the form of a one year free IBS membership plus a windbreaker will be made to current members who sign up 12 new members during the recruiting year. To get you started an application form is found at the bottom of this page. Extra forms can be obtained from Joan Borden at the address listed below or just send the applicant's complete name and address, along with the appropriate fee to Joan Borden. You must sign your name as sponsor to be appropriately credited for the signup.

I.B.S. membership and P.S. for one year	(U.S. & CANADA) - $30.00
I.B.S. membership and P.S. for one year	(OVERSEAS) $37.50
	(AIRMAIL) $55.00

INTERNATIONAL BENCHREST SHOOTERS
APPLICATION

NAME ______________________________

ADDRESS ______________________________

CITY ____________________ STATE __________ ZIP __________

SPONSOR: ______________________________

MAIL MEMBERSHIP TO: I.B.S.
Joan Borden, Rec. Sec.
RD1, Box 244A
Tunkhannock, PA 18657
Phone (717) 833-2234

Most Top Ten Wins—4 Years in a Row!

Precision Shooting Survey—1986 through 1989

PRECISION STAINLESS STEEL MATCH TARGET BARRELS

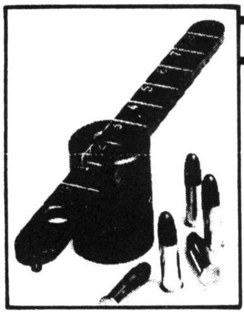
Available in .224, 6MM, 6.5MM, .270, 7MM, .25 and .30 Calibers
also .22 rim fire

Quality Gunsmithing Services
Custom Target and Sporting Rifles

HART
Rifle Barrels, Inc.

For prices and particulars, call or write!

P.O. Box 182, La Fayette, N.Y. 13084 • Phone 315-677-9841 • FAX 677-9610



.22 RIMFIRE ACCURACY GAGE

Because rim thickness variation affects accuracy, this gage permits measurement and segregation into more uniform lots. Inexpensive ammunition may be "improved," even match lots can be helped. Simply insert cartridge, slide bar until a reference reading is obtained. Available for standard S, L and LR rimfires or magnums — either is **$32.50** plus $2.50 shipping. Send **$2.00** for catalog of other items.

NEIL JONES CUSTOM PRODUCTS
R.D. 1 Box 483A, Dept. PS
Saegertown, Pennsylvania 16433
(814) 763-2769

MasterCard VISA

30 AMERICAN

UNPRIMED BRASS

Federal Cartridge Company manufactured. A basic case, 30-30 configuration, small primer pocket, small flash hole, annealed further down case body than usual, and manufactured to match case tolerances.

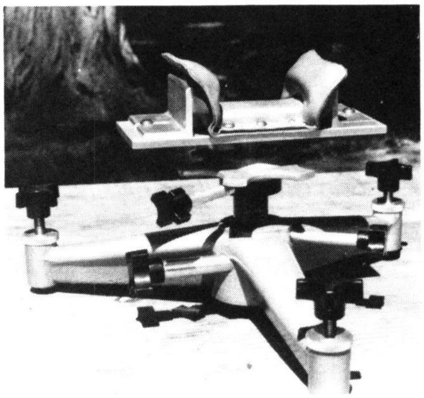
$43.00 per 100 cases (minimum order)
$38.00 per 100 cases (orders of 1000 cases or more)
North Carolina orders add 5% state sales tax.

We are currently chambering for the .219 Wasp, 6mm Wasp, 25 Wasp, and 30 Wasp.

The first 50,000 case lot has sold out, we have 18,000 cases left, and another 50,000 cases are on order from Federal.

DAVID TOOLEY
516 CREEKMEADOW DRIVE GASTONIA, NORTH CAROLINA 28054
Phone (704) 864-7525

The new
Bald Eagle Front Rest



PATENT PENDING

$129.95

with the standard top plus shipping

Add Penn. state sales tax (6%) where applicable

MATERIAL:
Aircraft Quality Aluminum
WEIGHT:
7 pounds, 12 ounces (with bag)
FINISH:
Imron clear, 3 coats
FEATURES:
— Rack and Pinion on primary rise
— Fourth leg
OPTIONS:
— Rifle Stop
— Deluxe top with stop
— Bag Available
— New, Windage Top Available

BALD EAGLE
PRECISION MACHINE CO.

101 Allison Street
Lock Haven, Pa. 17745
(717) 748-6772
FAX (717) 748-4443

BILL GEBHARDT
NRA Endowment Member/
IBS life member